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1941

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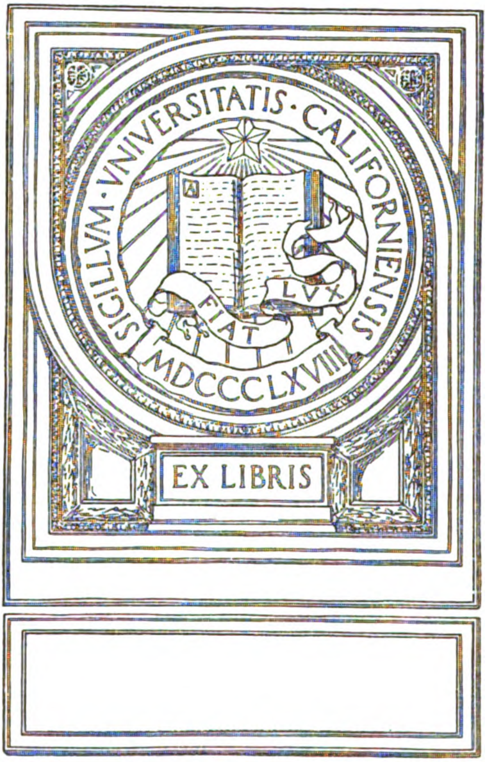

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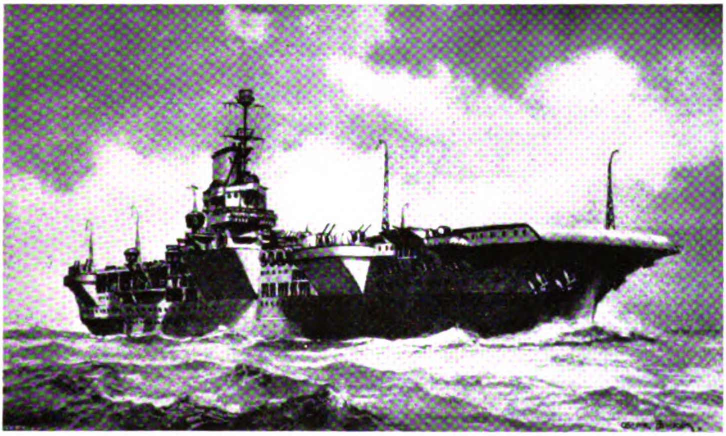

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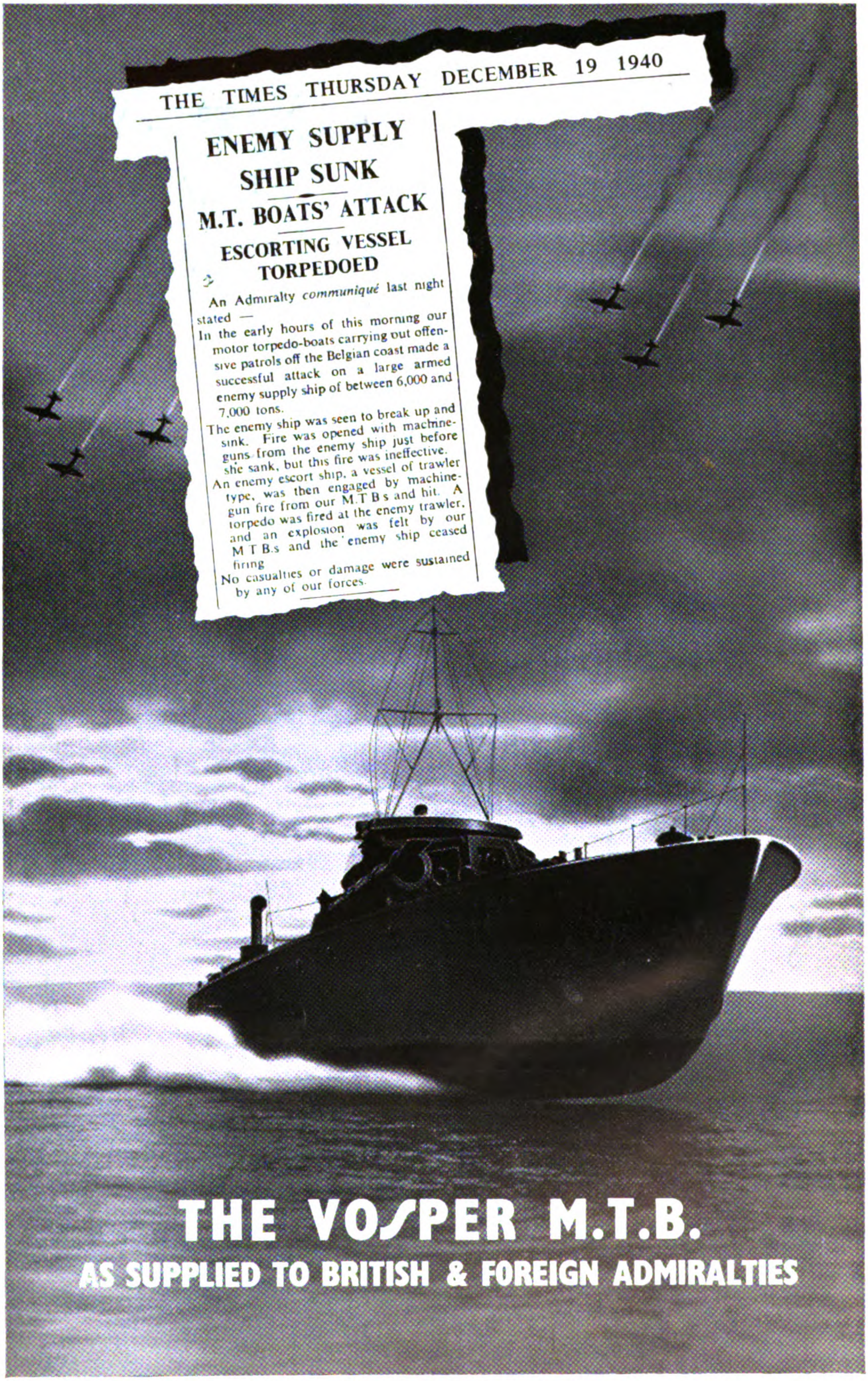

THE TIMES THURSDAY DECEMBER 19 1940

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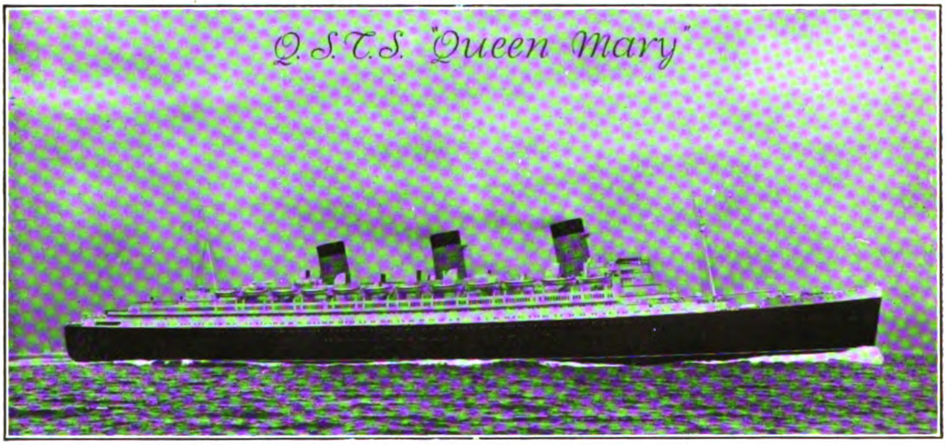

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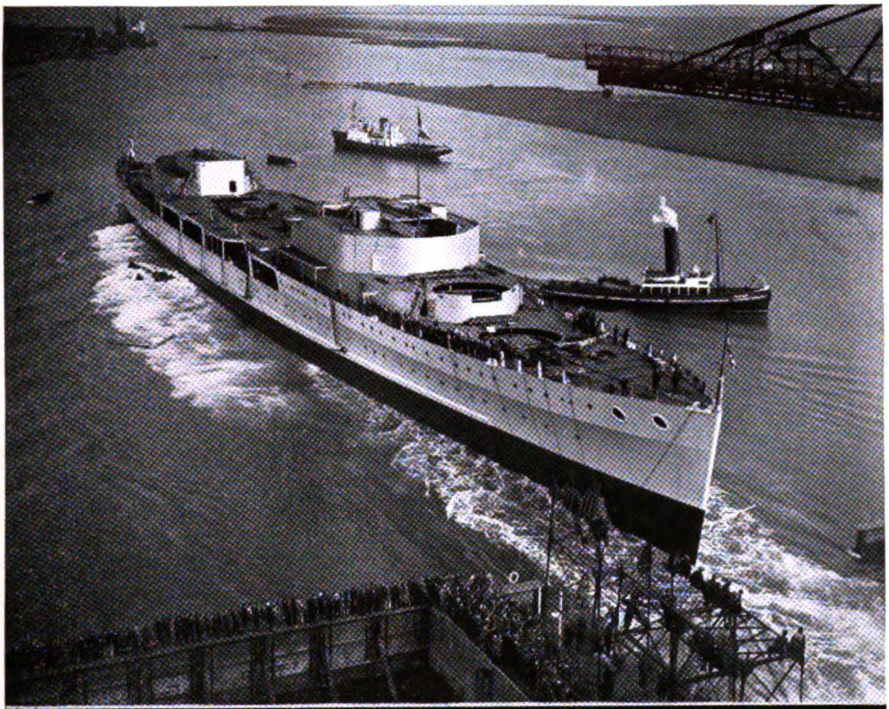

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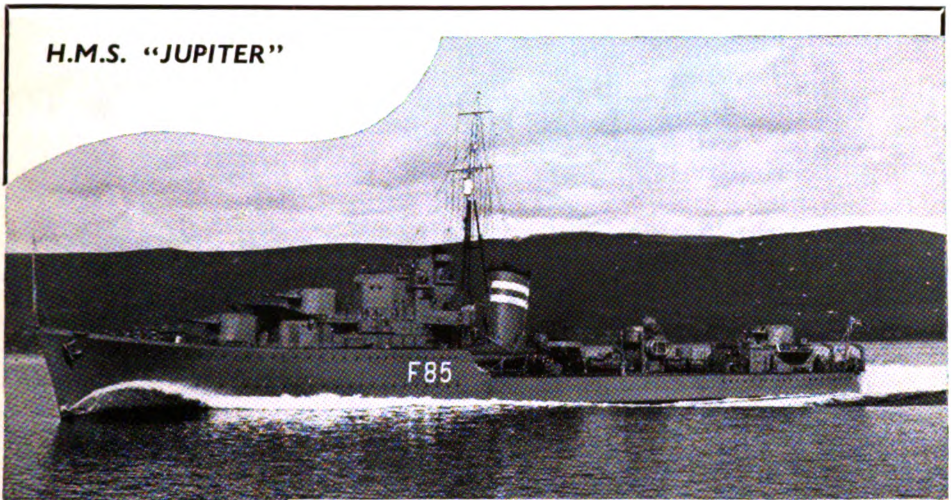

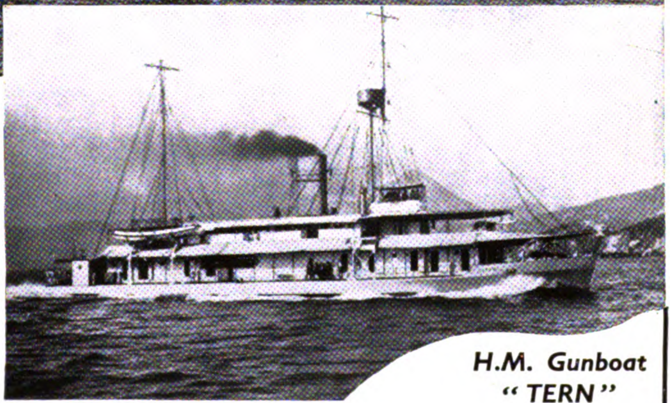

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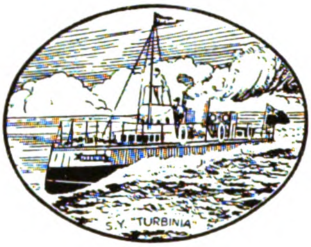

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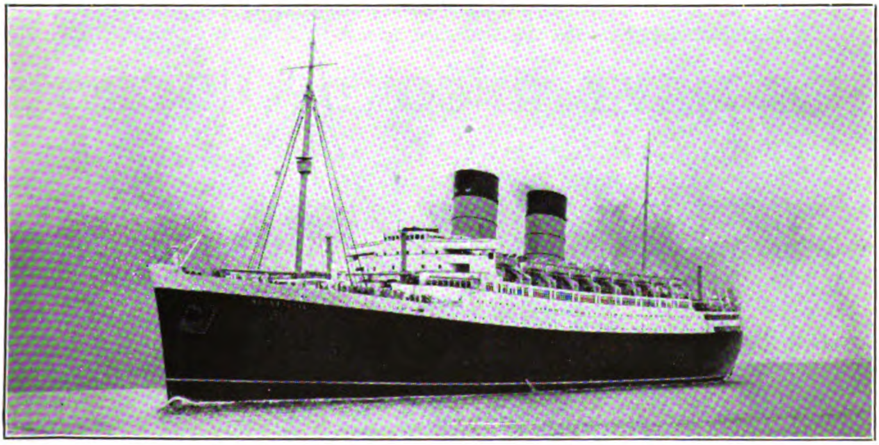

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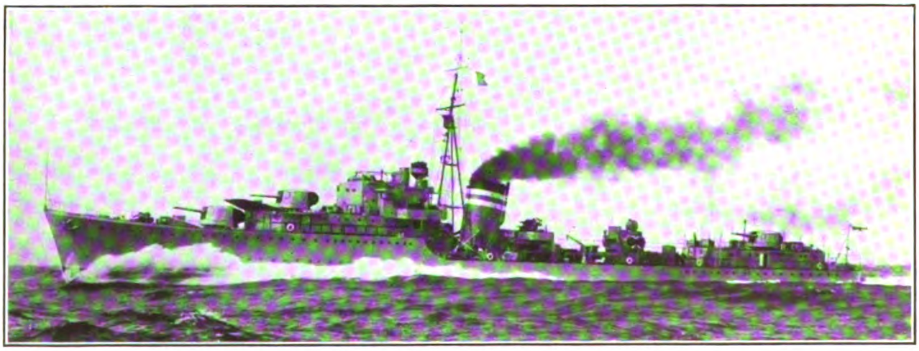

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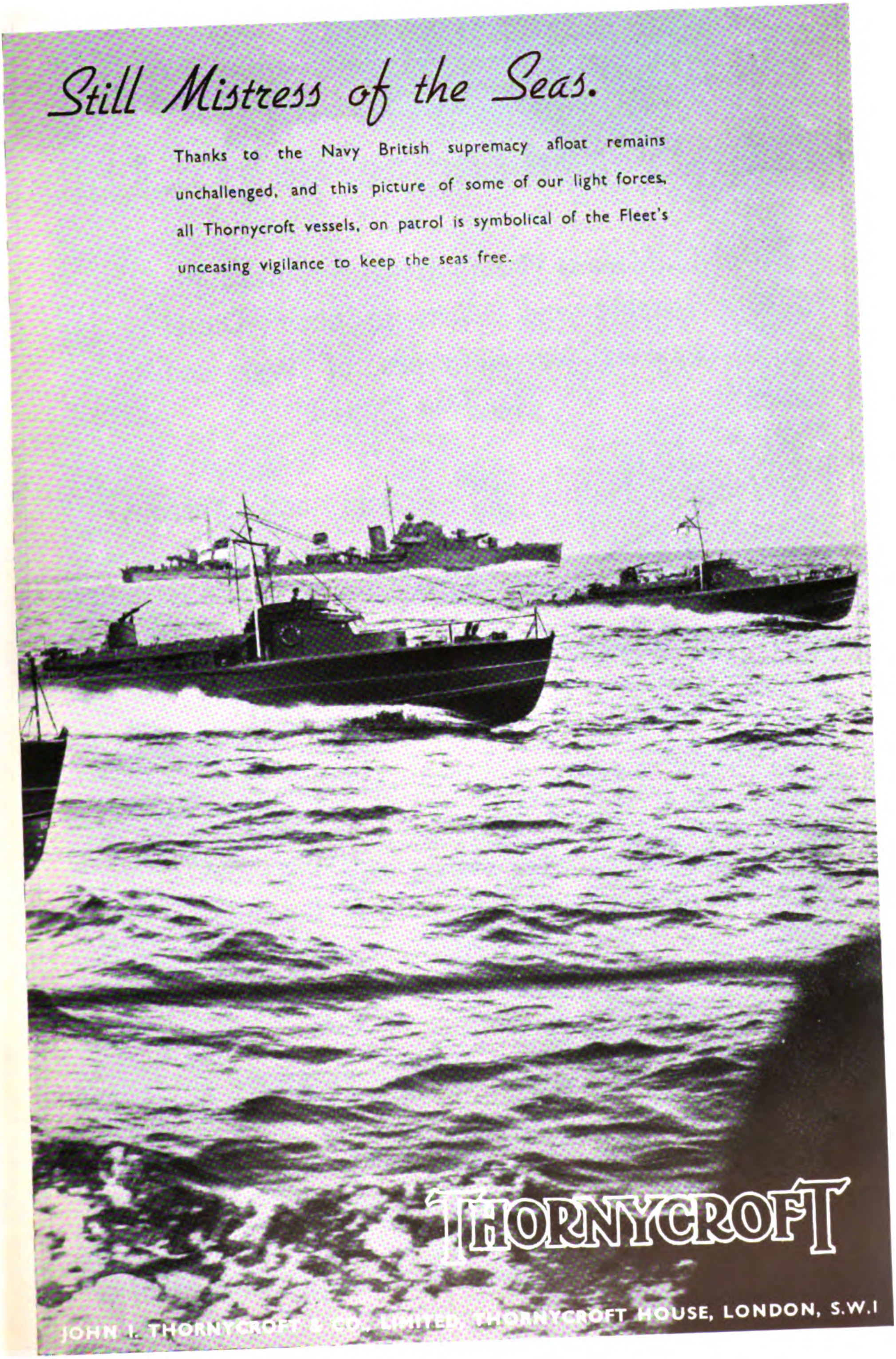

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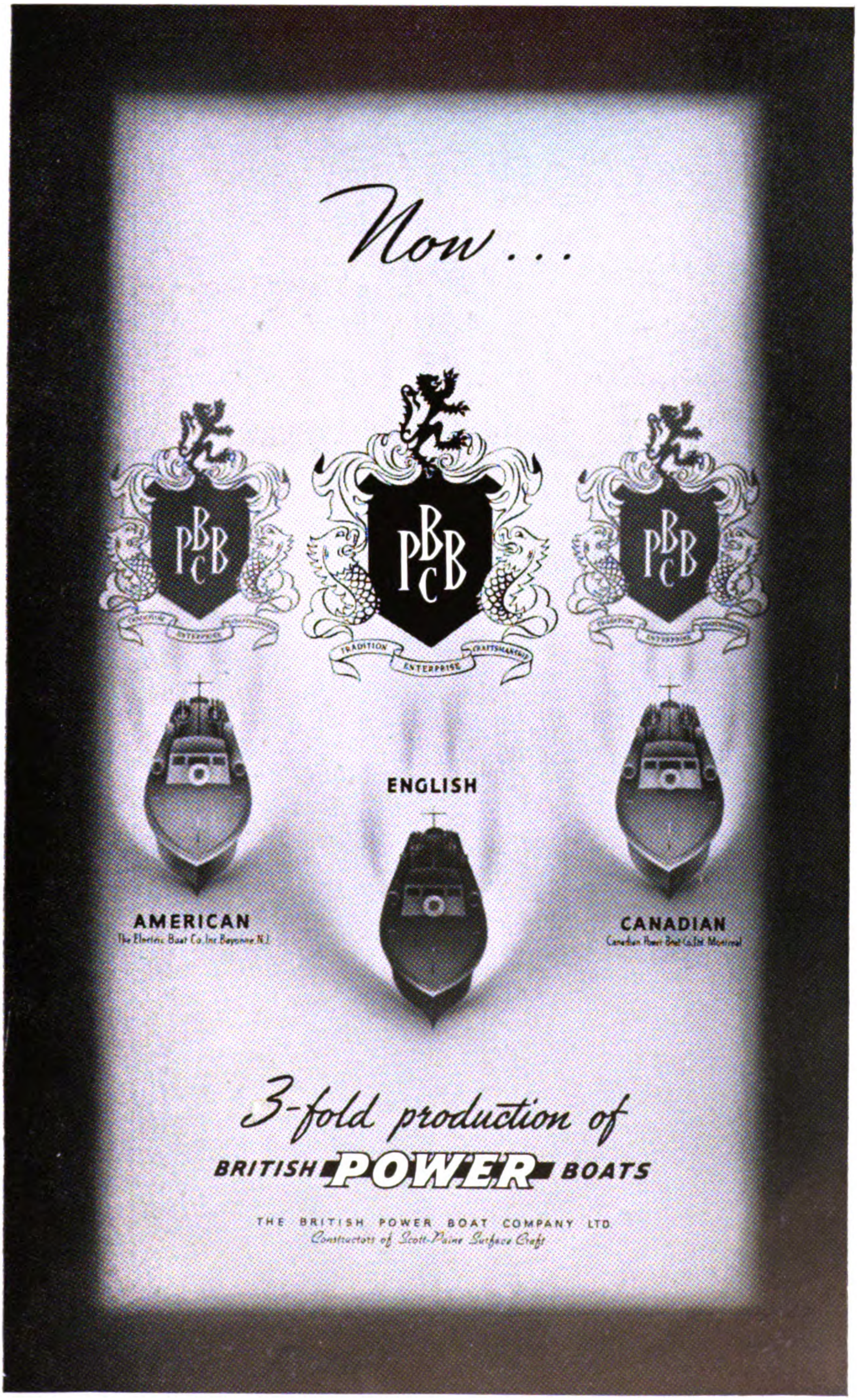
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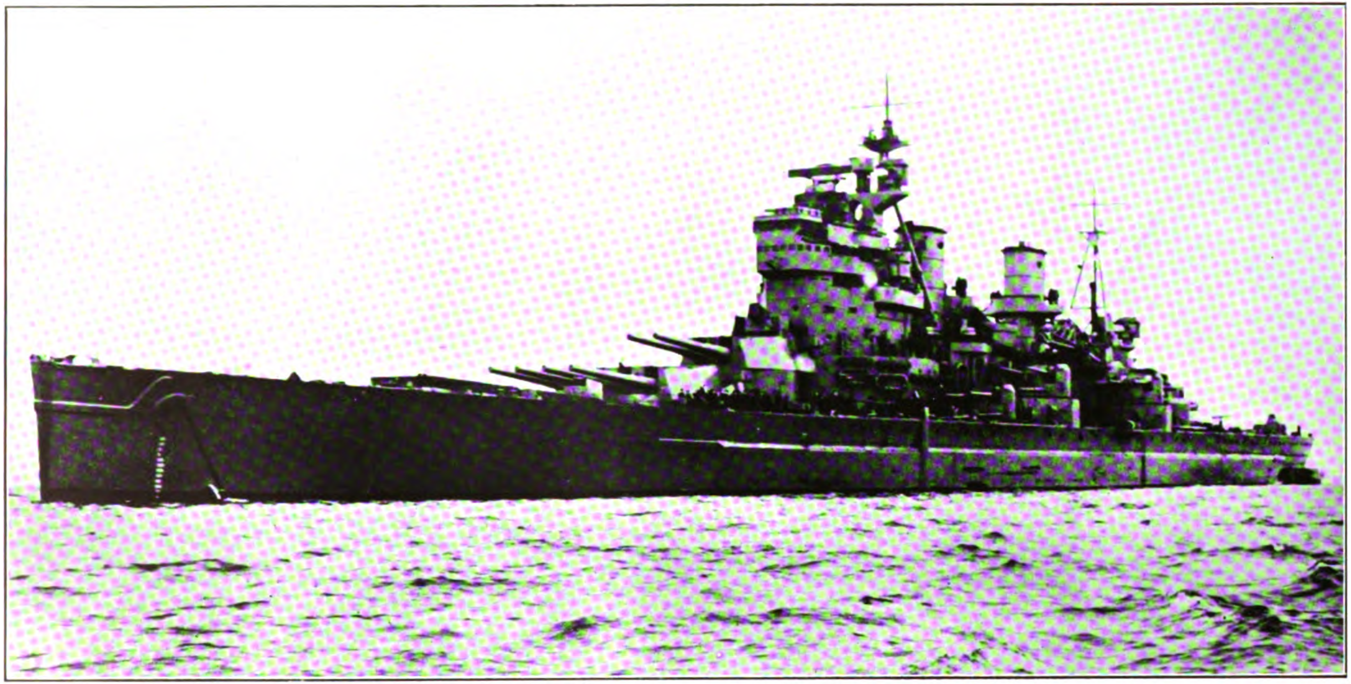

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1941

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PREFACE.

The war-time arrangement of " Brassey " adopted last year has been retained, and the letter-press consists of a chronicle of the war at sea during the year 1940, and a commentary, from various points of view, on different aspects of it.

The war at sea as a whole is chronicled in Chapter I, while Sir Archibald Hurd again deals with the Service he knows so well, the Merchant Navy, and the enemy's particular attack on it. Major Oliver Stewart deals with Air Operations at sea, and Commander Pursey with the enemy's submarine campaign in detail. Once more I am indebted to Mr. McMurtrie for a comprehensive review of the material progress of Foreign Navies, the subject which he has made peculiarly his own.

The United States Navy is expounded by a retired officer of that great Service, Captain Donald C. Bingham, who is very well known in the United States as a writer on naval subjects. I have also received another contribution from the United States, though the name of the author, Dr. Herbert Rosinski, will be familiar to readers of former issues of " Brassey." Dr. Rosinski has made a deep study of the works of former writers on Naval War and Strategy, and he has taken the opportunity of the centenary of the birth of Admiral Mahan to pay yet another tribute to that great man, in an examination of the extent to which his theories and conclusions have been confirmed in the course of the wars that have occurred since his death.

Mr. H. C. Ferraby contributes an account of the Navies of our Allies of to-day, and I have to thank Mr. Philip Graves for the illuminating analysis of the political influences which in the last quarter of a century have brought about the situation in the Eastern Mediterranean upon which the whole outcome of the war seems likely to turn. The well-known writer who of late has veiled his identity under the pseudonym " T.124 " contributes an examination into the soundness—or otherwise—of the national strategy adopted by this country in the last war, which has cogent lessons at the present time.

The difficulties, inevitable in war time, of compiling a book of reference dealing with the fighting forces have again, of course, prevented the Reference Section from being as complete as it has been the endeavour in time of peace to make it. Little information is published about the recent material developments of their representative navies by either belligerents, non-belligerents or even neutrals. A certain amount of information on these points, however, inevitably becomes public property, and it has been the endeavour to include in this volume all details of that sort which have been published. Under the "Miscellaneous" heading of the Reference Section, I have included a concise "Diary of Naval Events." There are none of the usual matters under that heading—Government Statements on Navy Estimates, and the like—available in time of war.

Mr. M. C. Dunstan has once more undertaken, under these great difficulties, the revision of the reference and pictorial sections. The tables of Naval Ordnance, I should explain, have been reprinted without amendment from last year's issue.

In conclusion, I should like to acknowledge with thanks the assistance which has been accorded to me, as usual, by all those to whom I have addressed queries or requests for information.

H. G. Thursfield.

REVIEW OF 1940

CHAPTER I.

A NAVAL CHRONICLE.

The naval chronicle in the last issue of Brassey was carried up to the end of February; the 1940 chronicle therefore begins with the month of March. It is on the whole a fairly appropriate starting point, although there were no naval events of very great interest during the month. There seemed to be a lull between the events which grew out of the depredations of the German raiders and the end of the Graf Spee at the River Plate, and the great extension of the war which started in the following month, when Germany began invading all her small and weak neutral neighbours, as a prelude to the great attack on France.

The month of March was marked by an intensification of air attacks on merchant shipping, fishing vessels, and even lightships, chiefly in the North Sea. On March 6, a German aeroplane made repeated attacks on a lightship thirty miles off the east coast of England, first with bombs and then with machine guns. Sixteen or eighteen bombs were aimed at the lightship, but although some of them were dropped from a height of no more than 150 feet, no hits were made. The plane was showing navigation lights when it came over at dusk, so that the lightship's crew took it for British until the attack started. It was repeated the following evening but this time the enemy came without lights. Ruthless German attacks on unarmed and defenceless neutral merchant ships continued throughout the month and were intensified time after time. U-boats torpedoed merchant ships without making the slightest effort to establish their identity or the business on which they were engaged. German airmen adopted the same methods and displayed a loathsome degree of brutality in glorying in the wanton destruction and murder which they achieved. This attitude seems to have been fully appreciated in Germany, if the German press is any guide! One narrative from an airman was published widely in Germany, describing how after bombing neutral merchant ships on the English coast, he delighted in seeing " little ships crackling up like Christmas trees."

Specious arguments were advanced to justify this quite unjustifiable form of warfare. Early in the month Grand Admiral Raeder, Commander-in-Chief of the German Navy, gave an interview to a correspondent of the American International Broadcasting Company. In it he argued that as all British ships sailing the seas may be serving the military ends of Great Britain in one way or another, all must be regarded as ships of war and therefore subject to attack. As for neutrals, the Admiral declared that they were only in danger if they behaved as if they were belligerents—for example, by steering a zigzag course or navigating without lights—if they joined British convoys, or if they entered British or French waters. He advised the neutrals to follow the advice of the U.S.A. and keep their shipping clear of the war zone altogether. He did not explain how countries like Holland or Belgium were to comply with this advice, nor did he attempt to palliate such cases as those of the Dutch steamers Sliedrecht and Tara, both of which were sunk, the latter without warning far from French or British waters, when engaged in carrying non-contraband cargo to Dutch ports. Equally flimsy arguments were uttered by the propaganda organisation, by whom it was suggested that the mere fact that a neutral ship had been to a British port, even if she was compelled to go there by British action, justified her being sunk at sight by the Germans.

All these specious excuses were of course merely for American consumption. They were mere lip service to the principles of justice and humanity which governed the actions of most nations who are not of the Axis. In reality, the German intention was to establish a sort of blockade by terrorism. Unable to enforce any sort of blockade by legitimate means, the Germans thought to frighten the rest of the world out of trading with this country. As it turned out neither the Dutch, Belgians, nor Scandinavians were so easily frightened; they continued to trade with this country and came more and more to rely on the protection given by British convoys for the safety of their ships.

U-boat attacks continued with regularity throughout the month. Bomb attacks were made on ships in British waters on about ten days during the month, but some of the victims were found to be not so defenceless as the enemy no doubt hoped. Defensive armaments of rifles and machine guns had been supplied to fishing vessels and convoys, of course, had the protection of the anti-aircraft armament of their escorts. This policy was quickly proved to be fully justified. Time after time German aircraft attacking British fishing vessels broke off the attack on finding that they were received with machine-gun fire. Attacks on convoys too were completely abortive, the fire of the escort proving effective in every case in keeping bombers outside bombing range of their charges.

So much was this so, that German bombers very soon abandoned any pretence of attacking convoys and made their attacks only on stragglers from convoys or on merchants ships—all of them neutral—sailing unescorted. It was the latter which were the only victims of the attempts at murder from the air.

APRIL.

Early in April changes in the organisation of the Higher Command were announced. The office of Minister for the Co-ordination of Defence, held up to then by Lord Chatfield, was abolished and Mr. Churchill, in addition to his duties as First Lord of the Admiralty, was charged with the co-ordination of the Services.

At this time the consistent abuse by Germany of Norwegian territorial waters had become so flagrant that it was evident some steps would have to be taken to check it. The case of the Altmark has already been described.* In addition, however, there was the matter of the iron ore trade between Narvik in the extreme north and Germany.

The supplies of Swedish iron ore from the mines of Kiruna were exceedingly important to all belligerents. The normal channel of supply to Germany was through the Baltic, but the Baltic navigation is closed by ice from December to May. Moreover, it is a much shorter run by rail from Kiruna to the Norwegian port of Narvik, which is ice-free throughout the year. British supplies of Swedish iron ore were shipped at Narvik and brought under convoy to this country. German supplies during the months that the Baltic route was closed were also drawn from Narvik, but the German ore ships made the 800-mile passage from Narvik to the Baltic entirely within the territorial waters of Norway, less than three miles from the shore. This voyage was dangerous from a navigational point of view and would never have been undertaken in peace time ; but by using this dangerous route, the German ships were immune from capture by the British Navy unless the latter infringed the neutrality of Norway by operating within her territorial waters.

The provision of international law which forbids belligerents to commit hostile acts within the territorial waters of neutral states was intended to protect neutrals from being drawn into war ; it was never intended to provide belligerents with protection for their sea commerce which they could not provide by their own strength. This use of Norwegian territorial waters was therefore an obvious abuse of international law.

This situation was galling to both belligerents. The Germans, unable at sea to cut off the British supply of Swedish iron ore, obviously sought for other means. The British Government on the other hand, while anxious to respect the neutrality of Norway, was not willing to countenance continual abuse of international law by Germany. They therefore urged the Norwegian Government themselves to take steps—as they had in the last war—to put a stop to the illicit and illegitimate use of their territorial waters.

In the last war, the Norwegians themselves laid minefields at certain points of their coast, so placed as to compel ships navigating along the coast there to emerge from territorial waters on to the high seas. The Norwegian Government, however, despite the suggestion that they should take the same action in 1940, was not willing to do so. On the ground that failure of the Norwegian Government themselves to take action to check the abuse of their territorial waters made it permissible for the Allies to remedy the omission, the British and French Governments decided themselves to lay such minefields in three positions off the coast of Norway.

At 5.15 a.m. on April 8 the British and French Governments informed the Norwegian Government they had done so, and at the same time broadcast a statement to the world giving the exact positions and extent of the three minefields they had laid. Two of them were between Bergen and Trondheim and the third was in the mouth of the wide Vest Fjord, through which is the access to Narvik. They were all small and their positions were such that they interfered with no normal traffic whatever. The only result of their existence was that any vessel navigating along the Norwegian coast was compelled while passing them to steer some ten to fifteen miles from the coast.

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* See "Brassey," 1940, p. 72.

The Norwegian Government at once protested and demanded that the mines should be removed. That, of course, was to be expected, but the matter was never pursued because the whole question of the minefields was almost immediately submerged in the greater events which supervened in the next few days.

Germany's method of dealing with the Norwegian situation which she found to her disadvantage was very different. Completely unrestrained by any regard for good faith, the sanctity of treaties or international law, she decided to invade and occupy both Denmark and Norway regardless of her complete lack of justification for that flagrant and wanton act of aggression.

The invasion was timed to start in all parts of both countries on the morning of April 9, and obviously the preparation must have begun some days, if not weeks, before that date. The flimsy pretext that her action was taken as a result of the Allies' mine-laying on April 8 was too transparent to be believed by anyone. The sequence of events at sea was as follows :

On Sunday, April 7, British minelayers, escorted by an adequate force of men-of-war, were on their way across the North Sea to lay the three minefields. One of the force escorting the northernmost party of minelayers was the destroyer Glowworm, from which on the Sunday afternoon a man fell overboard. The weather was bad and it took some time to pick him up and to recover the boat, so that the Glowworm became separated from the remainder of the force.

At dawn the next day, Monday, the weather in the north was stormy with snow showers, producing low and varying visibility. The Glowworm, on her way to rejoin her unit, sighted first one and then a second enemy destroyer and at once engaged them. A signal was received from her then that she had sighted another unknown warship ; but as that was the last that was heard from her, it was evident that she had encountered a greatly superior enemy force and had been put out of action. A later German account reported that a number of survivors were rescued from her when she was sunk.

In the forenoon of Sunday, a strong force of German battle-cruisers, cruisers, and destroyers, emerging from their bases in the Heligoland Bight and steering fast to the northward, was reported by British air patrols. Bombers of the Royal Air Force at once started forth with orders to attack the enemy off Horns Reef ; but they failed to locate the enemy ships and no attack was made. At the same time the Home Fleet at once put to sea with the object of engaging them, though it of course could not hope to make contact before the next day.

The Allied submarine patrols in the Kattegat and Skaggerak had been strengthened by Sunday in order to deal with any attempt by the enemy to interfere with a British minelaying operation, and on Monday there was considerable activity in these waters. At 1 p.m., the Polish submarine Orzel, off Lillesand, sighted a German merchant ship and summoned her to stop. She ignored the order and made off at high speed, whereupon the Orzel sank her with a torpedo. Much to the astonishment of the Orzel and of the Norwegian craft which gathered to the spot to pick up survivors, she was found to have been full of fully equipped German troops; from the survivors it was learned that she had also been loaded with tanks and ammunition. In the evening the new German tanker Posidonia was sunk by a British submarine in the entrance to Oslo Fjord and the Kreta by another submarine in the Kattegat. No contact, however, was made with the German force of men-of-war which was known to have sailed on Sunday.

On Tuesday, however, part of it at least was located. The Renown, at sea in the latitude of Narvik far to the northward, sighted the German battle-cruiser Scharnhorst in company with what appeared to be the 10,000-ton cruiser Hipper. She at once engaged them at a range of 18,000 yards. There was a heavy sea and the visibility was poor by reason of intermittent snowstorms. Nine minutes after opening fire, the Renown obtained a hit on the Scharnhorst, which appeared to disable the German ship's fire control, as the accuracy of her fire at once fell off. But although the Renown was steaming at over 24 knots, despite a heavy sea German ships made even better speed and finally put up a smoke screen and got away.

The Renown was hit twice, first by a shell which, according to Mr. Churchill's statement in the House of Commons, passed through near the water-line without exploding. The second hit the foremast and carried away the main aerial, so that it was impossible for her to make signals; but there were no casualties from either hit. It was hoped, according to Mr. Churchill, to intercept the German ships between the Renown in the north and another force further to the south. But this hope proved vain and nothing more was seen of the German ships, which succeeded in eluding both forces and returning to harbour, possibly using some of the numerous Norwegian fjords for concealment on the way. It must be realised of course that at the end of May in northern Norway it is still winter; heavy weather, snow and fog are common.

At one moment there seemed to be a prospect of intercepting a part of the main German naval force on its way back to its bases, when an R.A.F. reconnaissance on the evening of April 10 reported a ship believed to be the Hipper, 10,000-ton cruiser, in the harbour of Trondheim. The next morning at dawn a force of torpedo aircraft of the Fleet Air Arm arrived over Trondheim Fjord—which is 70 miles from the open sea—to attack her, but there was no cruiser there. A German destroyer was found, however, and she was attacked and sunk; but despite every search over the North Sea by both Navy and Air Force, nothing more was seen of the strong German battle-cruiser, cruiser, and destroyer force which had been observed leaving the Bight on Monday morning, beyond the Renown's fleeting glimpse of two of them on Tuesday. There is no doubt that the weather favoured evasion, and was thus kind to the enemy; but it must be admitted that the failure of both sea and air reconnaissance to locate an enemy in these circumstances was exceedingly disappointing.

While these events were taking place at sea, the German invasion of Norway was starting at several points, Oslo, Christiansand, Bergen, Trondheim, and Narvik. At Oslo German warships entered the fjord before daylight and the accounts of what happened there are vague and conflicting. The Germans admitted the loss of the 10,000-ton cruiser Blucher; though this seemed unlikely, and the Norwegians at the same time were convinced that the ship sunk was the battle-cruiser Gneisenau, it seems probable from later information that the German admission was actually truthful. The Norwegians also claimed that the German light cruiser Emden was sunk by a torpedo fired from the Norwegian training-ship minelayer Olaf Trygrason. This claim was also probably well founded. However that may be, Oslo was quickly in German hands and the coastal defences were disarmed or put out of action.

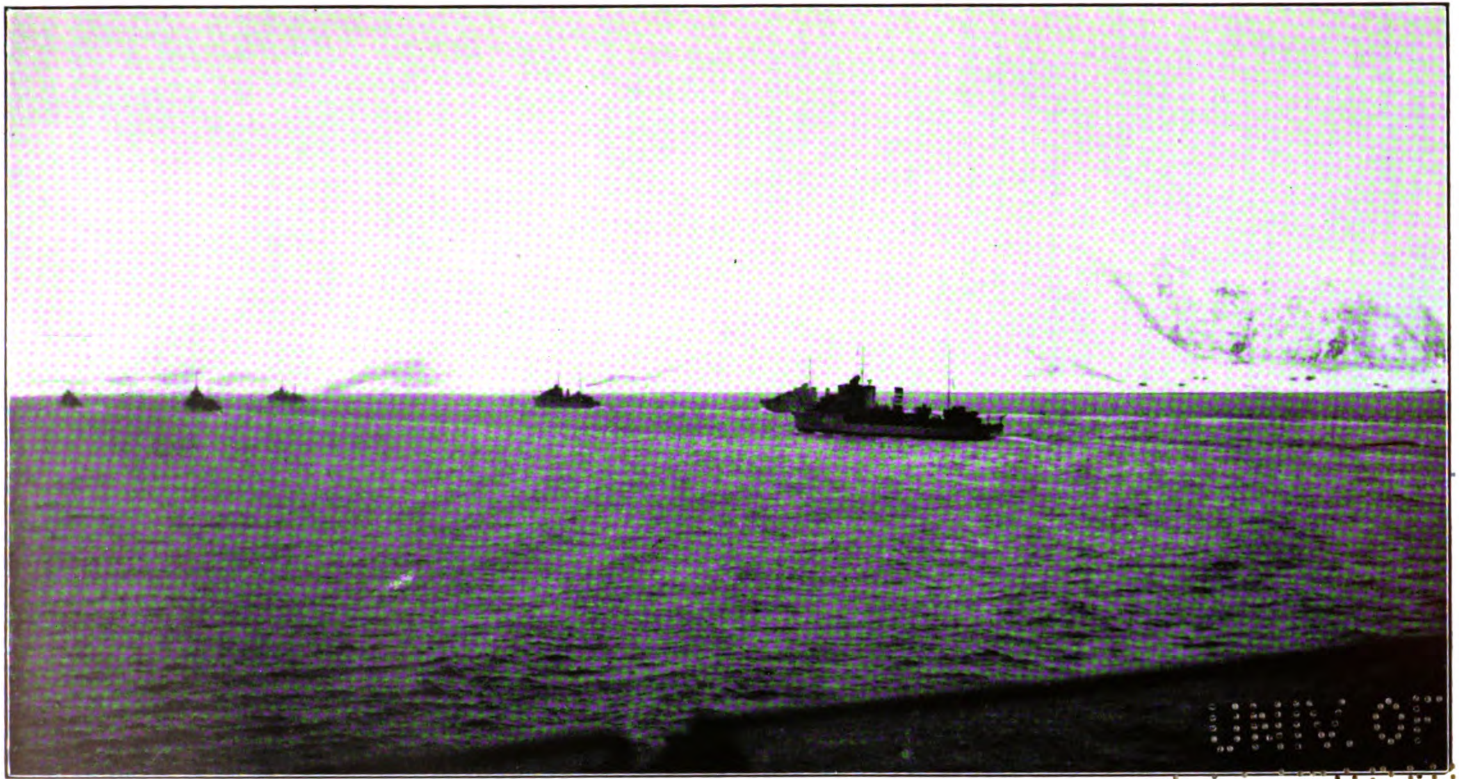
Off Christiansand the light cruiser Karlsrühe was torpedoed and sunk by H.M.S. Truant. Her loss, too, was admitted by the Germans, no doubt because it must have been seen by hundreds of people from the shore in Norway, so that it was impracticable to conceal it. At Bergen and Trondheim there were no naval actions, though the greater part of the British Home Fleet was cruising in the latitude of Bergen in the course of its operations designed to intercept the German Fleet.

It was repeatedly attacked by German aircraft and the flagship Rodney was actually hit by a bomb of the largest calibre. She was only slightly damaged, however, her anti-bomb protection proving adequate, and the only casualties were seven men wounded.

The cruiser Aurora was a particular target for bomb attack but she was not hit and escaped all damage. Two other cruisers were slightly damaged by splinters from bombs which burst in the water close to them and the destroyer Gurkha was hit by a bomb. She remained in action and attempts were made to tow her home; but she was too severely damaged and sank four and a half hours after being hit.

That evening, German men-of-war having been reported in the harbour of Bergen, an attack was made on them by bombers of the Royal Air Force. They reported that they had seen two cruisers and two destroyers and reported two hits on one of the cruisers. Later accounts received from Norwegian sources seemed to indicate that the German ships were the cruiser Königsberg and three destroyers and it seems doubtful whether any of them were hit in the first attack on April 9.

The attack was repeated in the morning of the following day by dive bombers of the Fleet Air Arm. They reported only one cruiser present, alongside the quay at Skultegrunn, and that they had made three hits on her with 500-lb. bombs. This claim was confirmed by



NARVIK

Before the second action. British destroyers entering Ofot fjord.

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an account from a journalist who was present. After mentioning the three hits it read as follows:

> " We heard a number of explosions from the ship and were soon able to observe that she was slowly heeling over. Ambulances were now hurrying through the streets, fetching the wounded and dead. In an hour the Königsberg had turned so much on her side that from where we stood the mast and turret appeared to be touching the water. But still she remained afloat. In two hours we could see nothing but her side and half an hour later only her propeller was above water. At midday oil, on the smooth water, was the only sign that a ship had floated there, but there was oil in plenty. The Press was not allowed to record the sinking of the ship. One Bergen newspaper tried to publish the account of an eye-witness, but all that appeared for the readers was three blank columns. The next day the Germans themselves announced that a ship of the Köln class had been sunk by " French dive-bombers, who had disguised their identity by using German initials."

The great event of that day at sea, however, was the first action at Narvik. After the indecisive action between the Renown and the Scharnhorst on Tuesday, the Second Destroyer Flotilla, under the command of Captain Warburton-Lee in the Hardy, consisting of the Hotspur, Hostile, Havock, and Hunter, was sent into the Vest Fjord to investigate what had happened at Narvik, where it appeared from Norwegian wireless messages that an attack had been made. At 6 p.m. Captain Warburton-Lee sent an officer ashore at Tranoy to ask for news and he learnt that six or more of the large German destroyers had entered the Ofot Fjord on their way to Narvik about twenty-four hours earlier. On reporting this intelligence, he was instructed from the Admiralty that it was left to his decision whether he should attack them or not. The German destroyers were individually superior to those of the second destroyer flotilla and they were certainly more numerous ; the Germans were evidently in decidedly superior force.

Captain Warburton-Lee was universally regarded in the Navy as one of the most brilliant of younger captains. One senior officer, under whom he had served, said of him, that there was no branch of a naval officer's duty in which he did not excel ; and his contemporaries and those who had served under him alike were unanimous in holding the highest opinion of his character and abilities. These golden opinions were fully borne out when he was put to the test and the burden of a great decision was thus thrown upon his shoulders. Within an hour and a half of the Admiralty message reaching him, he had made his decision. Knowing that an immediate attack even by inferior force would have a very good chance of completely disorganising the German plans and breaking up their surprise attack before the force in Narvik would have time to consolidate its position, he decided, despite the enemy's superiority, to proceed with his attack. By 3 a.m., on April 10, he led his flotilla into the Ofot Fjord on the way to Narvik.

What had happened the day before was this : eleven German destroyers, the Wolfgang Zerker, Bernd von Arnim, Erich Giese, Bruno Heinemann, Georg Thiele, and Erich Koellner of the 1,625-ton class ; the Diether von Roeder, Hans Ludemann, Hermann Künne, Wilhelm Heidkamp, and Anton Schmidt of the 1,811-ton class, each of them carrying 300 troops in addition to her crew, had reached the entrance to Narvik Harbour by 4.30 a.m. on April 9.

The weather was bad with frequent heavy snowstorms. In Narvik were the two Norwegian coast defence ships, Norge and Eidsvold; they had received information of the approach of the Germans from the coastguard stations at Tranoy and were therefore prepared to resist any attack.

On arrival the Germans sent an officer on board each of the Norwegian ships to demand that they should surrender. The demand was immediately rejected, and the Norge and Eidsvold prepared to open fire and resist any attack that might be made. As the German officer left each Norwegian ship, however, he signalled to the destroyer from which he had come and both ships were immediately torpedoed by the Germans before even they could open fire. The Norge sank in ten seconds, the Eidsvold almost as quickly, with heavy loss of life in both ships. The Germans thereupon ran into Narvik Harbour alongside the quays, landed their force of nearly 3,000 men and took possession of the town and harbour. It seems probable that they landed a few small guns, probably on field mountings, but the destroyers, being already overloaded with men, could have carried very little ammunition or equipment.

The weather was no better the following morning when the Second Flotilla, at 3 a.m., entered Ofot Fjord, which is thirty miles long from its entrance to Narvik, is only two miles wide in places and not more than three for the greater part of its length. So thick was the weather that the destroyers had to carry powerful stern lights to make station-keeping possible. One of the officers said of their passage up the fjord :

> " We never saw either side of the fjord at all, except just after entering when we very nearly hit it. . . ."

The flotilla led by the Hardy arrived off Narvik at 4.30 a.m. Leaving his four destroyers patrolling off the entrance Captain Warburton-Lee entered the harbour with the Hardy alone. After passing a merchant ship close to the entrance, a mass of shipping came into view, not only alongside the quays but anchored in the harbour. Amongst them a large German destroyer was distinguished.

As soon as the enemy destroyer was seen, the Hardy increased speed to 20 knots, made a circuit of the harbour, firing two torpedoes at the enemy who at once opened fire with her guns. The torpedo hit the German destroyer which disappeared with a tremendous explosion. As the Hardy circled the harbour two more large German destroyers were sighted and fire was opened on them also with both torpedoes and guns, to which the Germans promptly replied. The Hardy was also fired on by guns from the shore on the one side of the entrance. She was not hit, however, and the visibility was so low that it was not possible to observe the effect of her fire on the Germans.

When she drew clear of the harbour, Captain Warburton-Lee ordered his other four destroyers to enter and attack in their turn and he himself followed them in and made a second circuit of the harbour. All five British destroyers steamed in at high speed, circled the harbour firing with both guns and torpedoes at the German destroyers and also at the many German merchant ships in the harbour which were taken to be supply ships for the German invaders. As the Hardy left the harbour for the second time, the last ship to do so, ten torpedoes fired from German destroyers passed close to her, thus indicating to Captain Warburton-Lee that the German destroyers in the harbour were still intact. He therefore decided to attack again and once more led his flotilla in, circled the harbour engaging the enemy, and emerged.

As the flotilla cleared the harbour for the second time, they sighted three fresh German destroyers steaming towards them from the east, apparently emerging from the Rombaks Fjord which opens into the Ofot Fjord above Narvik. Captain Warburton-Lee increased to full speed and engaged the fresh enemy who were quickly joined by two more; a furious action ensued, in which the material odds were all on the German side.

The Hardy was disabled, Captain Warburton-Lee himself being killed, and had to be run ashore on the south shore of the fjord to save her from sinking. The Hunter also was sunk and the Hotspur was very severely damaged. They gave as good as they got however for one of the German destroyers was sunk, besides the one torpedoed, by the Hardy in Narvik Harbour on her first attack, two more were so badly damaged that they were in no condition to face the long passage back to Germany. A fifth was still out of action with engine defects which had developed on the passage north. They were thus in no heart to continue the action against the damaged Havock, Hostile, and Hotspur, which thereupon withdrew down the Ofot Fjord.

On their way out they met the German merchant ship Rauenfels steaming in. They opened fire on her and it immediately became apparent that she was full of ammunition for she caught fire, burnt furiously with frequent explosions and ran on the southern shore of the fjord. Evidently she had been carrying ammunition and supplies for the invaders, who were thus left without equipment.

The three destroyers on emerging from the Ofot Fjord remained on patrol off the entrance to ensure that the Germans should not leave unobserved. Their presence there was most effective, for the next morning the undamaged German destroyers, disappointed by the non-arrival of their supplies, started off to return to Germany. Emerging from Ofot Fjord they sighted British men-of-war on patrol in the Vest Fjord. The sight was enough for them and though they did not know that what they saw there, the Havock and Hostile, were without torpedoes and with very little ammunition left, they had no stomach for further fight and retreated once more into the upper reaches of the Ofot Fjord.

On Friday, aircraft of the Fleet Air Arm reconnoitred the harbour of Narvik and adjacent waters, dropped some bombs on the German destroyers which lay there, and claimed to have made hits.

The next day, Saturday, April 13, at noon, nine British destroyers steamed into Ofot Fjord, followed and supported five miles astern by the battleship Warspite, flying the flag of Vice-Admiral W. J. Whitworth. In the words of the Admiralty communiqué they were using " mine sweeps and other devices " which it is to be presumed were for the purpose of dealing with any U-boats that might be present.

One account which appeared in the Press stated that a U-boat was lying off the coast and attempted to follow the Warspite in—unsuccessfully however, as she was sunk by the battleship's aeroplanes. There would not appear to be any authority for this story, since no mention of any U-boat there appears in any official communiqué. It seems highly probable, however, that the Germans would have employed U-boats in such a situation ; but if they did so they had no success. The Admiralty's policy is to keep silent as a rule on the subject of operations against U-boats, so that the absence of any mention in official communiqués is no proof that there was none present.

The force was led by the destroyer Icarus and the remainder were formed in two divisions. The starboard division consisted of four " Tribal " class destroyers, the Bedouin, Eskimo, Punjabi, and Cossack. On the other side were the Hero, Kimberley, Foxhound, and Forester. There were no snowstorms such as had made Captain Warburton-Lee's battle so difficult, but the weather was misty with low clouds and drizzle, so that visibility was variable but not less than five or six miles.

The first contact occurred 20 minutes after the destroyers had passed the entrance to Ofot Fjord at Tranoy. A German destroyer was sighted on the starboard bow close to the southern shore of the fjord. The leading destroyers immediately opened fire on her but in less than 5 minutes she was lost to sight in the mist, and fire ceased. At this time the wreck of the Rauenfels, still smouldering, was sighted on the south shore of the fjord.

A quarter of an hour later another German destroyer was sighted on the starboard bow and was at once engaged. After 10 minutes she was joined by two more German destroyers and a brisk action ensued in which the Warspite joined with her 6-inch guns. As the British destroyers were emerging from the narrow part of Ofot Fjord into the wider space abreast the village of Ballangen a fourth German destroyer joined in the fight, but this newcomer was the first to be put out of action. In 8 minutes all her guns were silenced except one ; she was on fire fore and aft and had run ashore in Ballangen Bay. Her last gun was silenced by the Warspite as she in turn came abreast of the bay.

Meanwhile, yet another German destroyer appeared from Narvik Harbour and for a short time there were five German ships in action with nine British, the latter supported by the fire from the Warspite which had then closed up to 3 miles astern. The destroyer action was a confused *melée*, ships of both sides zigzagging across the fjord, altering speed and course continually and rapidly in order to avoid torpedoes fired by both sides, and to avoid damage by gunfire. The Germans continually retreated up the fjord followed gradually by the British. Up to this time although the Germans' fire was reported to be fairly accurate and several British destroyers had been straddled by salvoes and had narrowly escaped torpedo hits, no actual damage had been received. British fire on the other hand began to be effective and several hits were reported on the German ships.

In the half an hour between 2 o'clock and 2.30 the defeat of the Germans was assured. By 2.30 two more German destroyers were out of action; one of them ran ashore in Herjangs Fjord, on the north side opposite Narvik, and there caught fire, the other was drifting derelict in the middle of Ofot Fjord. Four other German destroyers dropped smoke floats and retired into the long narrow Rombaks Fjord beyond Narvik town, whither they were followed by the Eskimo, Forester, Hero, Bedouin, and Icarus.

In the meanwhile the Cossack entered the harbour of Narvik itself, sighting a German destroyer alongside the jetty at the south side of the harbour as she passed the entrance. Both ships opened fire and in 2 minutes the enemy's guns were silenced; but the Cossack suffered considerable damage and several casualties. A punctured steam-pipe rendered her helpless and she drifted ashore on the west side of the harbour. While there she was fired on by what appeared to be a howitzer mounted on shore. She returned the fire and silenced it; men were seen running away from the position and retreating up into the hills. The Warspite, which by this time had come up, also fired with both 6-inch and 15-inch guns on the positions where guns were believed to be mounted onshore, assisted by the Punjabi and Foxhound.

Half an hour later the Foxhound entered the harbour, and observing that the enemy destroyer with which the Cossack had been engaged appeared to be deserted and sinking, closed her to investigate. As she approached she was received with heavy rifle and machine-gun fire; she thereupon opened fire with her 4·7-inch guns and the German destroyer blew up and disappeared with a tremendous explosion. That was the end of resistance in the town and harbour of Narvik. Though the Cossack remained ashore for the rest of the day and well into the night less than 2 miles from the town, she was unmolested and was able to patch holes and attend to her wounded.

In Rombaks Fjord there were still four German destroyers which had been lost to sight as they retreated up the narrow and curving fjord. They were pursued, however, by the Eskimo, Forester, Hero, Bedouin, and Icarus, joined later by the Kimberley. Rombaks Fjord is 10 miles long, never more than a mile wide, only half a mile at the entrance; half way up there is a narrow neck with a sharp double bend which leaves a channel only 200 yards wide and makes it impossible to see from outside anything in the inner fjord. Only one ship could pass the narrows at a time.

The British force was led by the Eskimo. As she passed the narrows and for a few moments was unsupported, she came under a hot fire from German guns and was hit by a torpedo. Her assailant was one of the German destroyers which had been severely damaged but whose guns and torpedo tubes were still in action. This German ship was beached just inside the bend with her guns and torpedo tubes bearing on the entrance through the bottleneck. The Eskimo, though severely damaged and almost unmanageable, was equal to the situation, however, and engaged her assailant with all guns. The next destroyer, the Hero, was delayed in passing the narrows by the Eskimo, which, owing to her damage, could not immediately clear the channel. As the Hero passed through, however, she saw the enemy burning fore and aft and her guns silenced by the Eskimo's fire.

The Hero, Kimberley, and Icarus then continued up the fjord, and when they came in sight of the head which was blocked with ice, they found the three remaining German destroyers beached and abandoned. Boarding parties went on board the one which was still afloat, the Hans Ludemann, and found her deserted except for one wounded officer who was brought away. The second German destroyer was already sunk and the third heeled over and sank as the boarders were approaching. As soon as the boarders returned, the Hans Ludemann was sunk by a torpedo from the Hero. That was the end of the last of the German warships which had invaded Narvik four days before.

The British force then withdrew from the narrow waters of Ofot Fjord with exception of the Cossack, still ashore in Narvik Harbour, and the Kimberley, which remained to assist her to refloat; they were joined later by the destroyer Ivanhoe, which had just arrived. During the night the Ivanhoe took on board the survivors from the Hardy, numbering about 130, together with forty-seven British merchant seamen from ships sunk in Narvik Harbour. Some twenty of the wounded had to be left in a hospital at Ballangen. The Cossack refloated during the night and all destroyers were then ordered out of the fjord, leaving the Germans who had fled from the town into the mountains while the attack was in progress, to return at leisure and once more establish themselves in control of the town of Narvik.

Two days later a British military force arrived in the vicinity. It was landed not at Narvik however, but at Harstadt in the Lofoten Islands some distance away to the north, and military operations extending over more than six weeks were necessary before possession could be taken of Narvik itself. No details of this campaign were made public. When they are, the failure immediately to follow up the decisive success achieved at the time of the destruction of the German destroyers will perhaps be explained.

It became known some weeks later that two officers and forty-four ratings from H.M.S. Hunter were taken prisoner by the Germans when their ship was sunk in the first action. After the second action, they were hastily released by their captors and sent over the frontier into Sweden, together with 129 British merchant seamen from British ships seized in the harbour of Narvik when the Germans arrived. They were well cared for in Sweden, and having been released, they were treated as shipwrecked mariners and sent back to England at the first opportunity.

On April 16 it was announced that British troops had landed at various points in Norway. Actually at Namsos, north of Trondheim, a naval party, which included marines to hold the position in which the Army was to land afterwards, landed on April 14, followed on

April 16 and 18 by the Army, and a few days later by French troops. At Aandalsnes, south of Trondheim, the naval advance party landed on April 17 and the troops on April 18 and 19. Another force of British troops, joined later by both French and Polish detachments, landed at Harstadt in the Lofoten Islands, about 100 miles north of Narvik, about April 15—the exact date on which they landed was not made public. All these forces were strongly and continuously supported by the Navy. They were severely handicapped, however, by lack of air co-operation, beyond what the Fleet Air Arm could give them, for one of the enemy's first precautions had been to seize the few available aerodromes. Of these, the largest and most important was that at Stavanger.

The R.A.F. could not, of course, bring fighter aircraft on the scene, with the exception of a squadron of Gladiators which, as described in Chapter IV, operated for a time from a frozen lake. Their only method of acting against the German bombers, therefore, was to attempt to render their aerodrome incapable of being used. With that object bombing attacks were made almost daily on the Stavanger aerodrome from April 11 onwards. On April 17 the Navy took up the task, a cruiser of the Home Fleet bombarding the aerodrome for an hour and twenty minutes just before dawn, aircraft of the Fleet Air Arm spotting for her, and providing protection against the inevitable air attacks that were made on her as she withdrew. No less than 115 bombs were aimed at her then, and one of them hit her and inflicted considerable damage. The German official accounts stated repeatedly that she had been sunk and that two other ships had been hit and damaged ; but actually she reached her base safely, while her attendant aircraft of the Fleet Air Arm shot down one Dornier and one Heinkel, damaging another Dornier and two more Heinkels ; no other ship was hit at all.

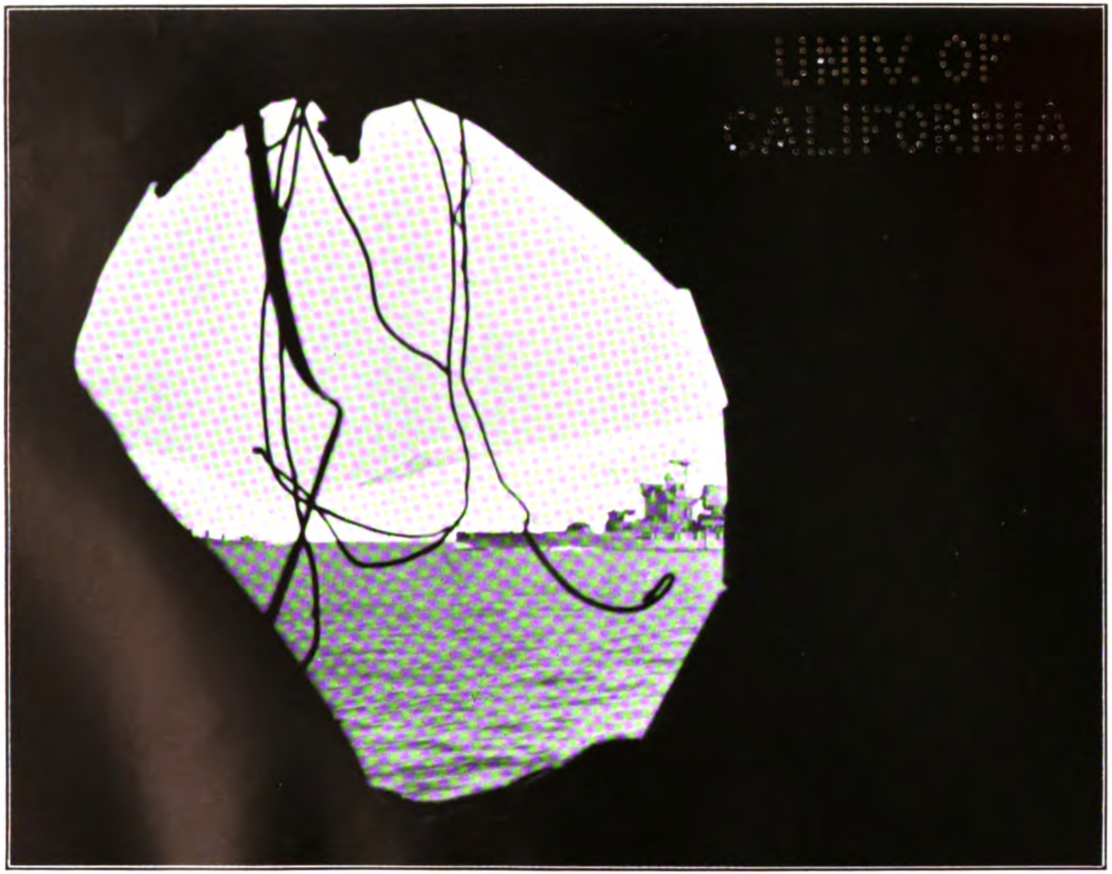
Apart from this bombardment, there was little further naval action by surface ships in the whole Norwegian campaign, beyond assistance to the Army, until the very end of it—of which more later. Submarines and aircraft took a heavy toll of German transports and supply ships passing up the Kattegat, and even in the Skagerrak, no less than twenty-six of them having been sunk between April 9 and 22 alone. The following list is of course not exhaustive, because the fine calm weather which succeeded the bad weather of the first week of the campaign made the operations of submarines exceedingly difficult and greatly favoured the operations against them of the German anti-submarine craft, so that it was often impossible for them to observe the results of their attacks ; but it provides evidence of the unremitting vigilance of the British submarines and the high standard of skill with which they were handled in the most difficult of conditions.

The sinking on April 8 of the tanker Posidonia—which was actually on her maiden voyage and was carrying a cargo of 7,000 tons of oil fuel for the supply of the German forces in Norway—and the Rio di Janeiro has already been described. On April 9 the Sunfish torpedoed an enemy supply ship in the Skagerrak, and on the next day another, specified this time as being of 3,000 tons. On that day too, April 10, the larger submarine Triton put four torpedoes into a large convoy. On April 11 it was the turn of the Spearfish, which encountered off the Skaw one of the "pocket battleships," thought at the time to have been the Admiral Scheer, though later it seemed possible that it might have been the other; but, whatever her name, she was hit by two of the Spearfish's torpedoes. That day the Sealion sank the August Leonhardt, and the following night the Triad penetrated right into Oslo Fjord and torpedoed a 4,000-ton supply ship which she found there. On April 12 the Snapper sank by gunfire the small tanker Moonsund, which was found to have been carrying a full cargo of aviation spirit—a very valuable bag—and two days later put a torpedo into a large ship in convoy. On April 13 the Sunfish torpedoed a 3,000-ton supply ship, and the next day hit a 6,000-ton transport with two torpedoes, but could not observe the final result. The Snapper came into action again the next day, 15th, when she fired a salvo of torpedoes into a convoy and heard four of them explode, though again she could not observe the full result. On April 18 the Seawolf attacked a convoy, setting one ship on fire by gunfire and torpedoing another; on April 20 the Triad made two hits with torpedoes on an enemy convoy; on April 21 the French submarine Orphée torpedoed and sank a U-boat.

The glassy calms which succeeded the bad weather of the first weeks of the Norwegian operations favoured the enemy's small anti-submarine craft so much that they became a serious nuisance, and eventually action was taken against them. Presumably British destroyers could not be spared for this duty; all their ordinary duties were just as urgent as ever, for neither the convoys nor the larger warships could be left without their co-operation—so it was undertaken by a force of French *contre-torpilleurs*. On the night of April 24 a small flotilla of them—the precise number was not published—made a raid into the Skagerrak, where they encountered two "patrol boats" which they sank out of hand. Shortly afterwards, they were attacked by two "E-boats"—M.T.B.'s, as they would be called if they were British—but them they sank by gunfire before they could fire their torpedoes. At the same time that this operation was announced from Paris, it was also made public that the cruiser Emile Bertin had been hit on her superstructure by a heavy bomb, but that it caused very little damage and no casualties. This seemed to indicate that she had been acting in support of the flotilla which entered the Skagerrak, but there was no other indication of any further action of that sort. There was some criticism in Parliament of the omission to follow up this success with further action by surface ships in the same waters.

In view of the difficulties under which the British submarines were working, it is perhaps surprising that losses were not greater than they were. On April 8 it was announced by the Admiralty that H.M.S. Thistle was overdue and must be considered lost; the same melancholy announcement was made on April 30 about the Tarpon and the Sterlet.

In the Bergen area, operations were left chiefly to the Fleet Air Arm, the R.A.F. being busy with Stavanger and the aerodromes of



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NARVIK
H.M.S. Warspite in Ofot fjord seen through a shell hole in the side of H.M.S. Cossack.

Oslo and Denmark and the Army concentrating on the operations on either side of Trondheim. The Skuas' success against the Königsberg has already been described, and they found no more German warships there after that. But on April 14 they hit a transport and set her on fire, and sank a storeship. Two days later they sank a transport and hit a U-boat on the surface. On April 25 they attacked with success the aerodrome at Vaarnes close to Trondheim. Two grounded bombers were destroyed and nine seaplanes lying at moorings in the fjord were successfully attacked. At Thanshavn two German tankers were set on fire, and four transports and two supply ships were also attacked. On April 28 another attack was made on Vaarnes, all the remaining hangars were destroyed, several grounded aircraft, and the flying-boats and seaplanes at moorings were again attacked. Five enemy aircraft that attempted to oppose this raid were shot down. The same day three Skuas broke up an attack by seven German aircraft on the carrier to which they belonged, bringing down two of them.

Once the British military forces had landed in Norway, the Navy was of course very fully occupied with their supply and support. Throughout their campaign there British ships operated continuously at their three sea bases, Namsos, Aandalsnes, and Molde—the Narvik campaign was quite separate—but they were under grave disadvantages. The Norwegian fjords are narrow and with little room for manœuvre ; many of them are much too deep to anchor in except at a few well-known places, so that it might have been expected that the German Air Force, which was able to operate there in great strength, would have it all its own way. It would have been foolhardy to employ big ships, battleships or cruisers, in such conditions without strong support from fighter aircraft, and this support was just what was lacking ; so the duty fell on such trawlers, sloops, and anti-aircraft ships as could be spared from their very important duty of defending convoys on the other side of the North Sea. For the Germans, who did not need their long-distance bombers in Norway, did not relax their attacks on their ordinary targets.

Despite the apparent advantages on the side of the bombers, and the ascendancy they soon established in the operations on land, they had remarkably little success against ships. They succeeded indeed in stopping all ordinary transport by water in the fjords—the only transport there is in most of coastal Norway—in daylight ; but the inhabitants quickly adapted themselves to that situation by moving only at night. But against men-of-war—even the armed trawlers which formed the majority of the men-of-war involved—or transports protected by the men-of-war's A.A. fire, they achieved remarkably little. One transport was sunk, with the loss of some military stores, after the troops had disembarked and H.M. trawler Rutlandshire was sunk, without casualties, on April 20. H.M. trawlers Hammond and Larwood sank on April 28 as the result of bomb damage from splinters and near misses—not direct hits—but they had no casualties ; and Warwickshire and Cape Chelyuskin sank from the same cause on May 3. The only considerable success achieved by aircraft against ships in this area was the sinking of

H.M.S. Bittern, a sloop with the heavy A.A. armament of six 4-inch guns, on May 2. She had been in almost continuous action against successive waves of German bombers which had been coming over the harbour in which she was lying, and her fire had been so effective that they had achieved nothing against the transports and other ships that were using the harbour; though it was not possible to observe how much execution she succeeded in doing against enemy aircraft, since, if they were shot down, they never fell within sight of the ship. Eventually she was hit aft by a heavy bomb which exploded her depth charges, put her after gun out of action, and started a fire which could not be controlled, and finally spread throughout the ship. The crews of her forward guns were quite unperturbed, and continued to serve their guns and engage the enemy bombers up to the moment that the fire obliged them to abandon ship. The Bittern eventually had to be sunk by a British torpedo, as she drifted blazing down the fjord and was a danger to other ships. There were no deaths and only eight wounded.

Four other armed trawlers were also lost in these operations in central Norway, H.M. trawlers Jardine, St. Goran, Gaul, and Aston Villa. They were not actually hit by bombs, but they had received damage from near misses and splinters, though they continued in action while in the fjords and did good service there. When it came to the withdrawal, however, it was found that they were not in condition to face the passage back across the North Sea, and they were therefore sunk in the fjords so that they should not become available to the enemy.

Practically no details were made public of the course of the campaign in the Narvik area, but the military conditions were not so difficult there as in the other areas. There are no aerodromes north of Trondheim, so that the enemy could only employ long-distance aircraft there, and as they seemed not to be available in such large numbers as further south, they could be more effectively countered by the Fleet Air Arm. It is known, however, that at least one U-boat was destroyed in sight of the transports entering a fjord on April 15, and the troops just about to land witnessed the encouraging spectacle of their would-be destroyer being brought to the surface by depth charges, and abandoned by her crew before she sank as the result of the fire opened on her as she appeared.

The enemy, as already mentioned, did not relax his attacks on this side of the North Sea, while he was engaged on the rape of Scandinavia. U-boat attacks, minelaying by both U-boats and aircraft, and attacks on convoys and single ships—when they could be found—by both bombs and machine-guns from the air, continued without intermission. All these operations could be carried on by craft not needed by the enemy in Norway, but they were designed to occupy the attention of our own ships which would otherwise have been available for employment there by us.

Attacks on merchant shipping by U-boats continued throughout the month, though from results (see Chapter VI) they would appear to have been less intense than before, possibly because a number of U-boats were working in Norwegian waters. No details, either of them or of the anti-U-boat operations of our forces, were made public, except that H.M.S. Zulu sank one U-boat off the Orkneys on April 9. Air attacks were made on convoys off the East coast of Britain on April 3 (twice), 10, and 19. Shipping in the Thames Estuary was attacked from the air on April 20; enemy air reconnaissances were made of the Shetlands on April 22 and other days; and aircraft were observed laying mines off the south-east coast on April 20 and 22.

On April 30, on account of the attitude of Italy, British shipping to and from the east was diverted from the Mediterranean.

MAY.

On May 1 the British military forces operating south of Trondheim, having been unable to hold their own against the much stronger and better equipped German forces advancing up the railway from Oslo, were withdrawn by sea, and the fact that they had been brought away was announced by the Prime Minister, Mr. Chamberlain, in the House of Commons the next day. Actually it had been intended to withdraw the forces north of Trondheim from Namsos at the same time, but as the latter port was shrouded in an impenetrable fog that project had to be abandoned. Mr. Chamberlain's speech was so framed as to give the impression that there was no intention of evacuating Namsos. The fog there, however, did not persist and twenty-four hours later the Namsos force, which included French troops, was also withdrawn.

The Norwegian troops with whom the Allies had been co-operating acted as rearguards during these withdrawals and so, of course, greatly facilitated the evacuation. There were in fact no casualties during the withdrawal despite the necessity, since all the ordinary piers, which in Norway are always built of wood, had been destroyed by fires started by German air attack, for improvised embarking arrangements. There were, however, some casualties in the Bittern, when she was disabled just before the troops left.

The most hazardous part of the withdrawal, perhaps, was the return voyage across the North Sea. It was to be expected that the transports and their escorts would be heavily attacked from the air as they retired, and there was also a possibility of attempt by German naval forces to interfere with the passage. The best method of countering any such attempts at interference was to keep the enemy busy by attack. Accordingly the Royal Air Force were particularly active on May 1, 2, and 3, bombing the great aerodrome at Stavanger and the air stations at Ry in Denmark and Fornebu. At the same time the British submarines were particularly active in the Skaggerak and even right into the Kattegat.

Nevertheless air attacks were made on the returning convoys and the Germans claimed to have severely damaged one cruiser by two direct hits and to have hit another cruiser and to have sunk a transport. The last claim was groundless for no transport was hit by bombs, so effective was the anti-aircraft fire of the escorting warships. The two former probably referred to the attacks on the

British destroyer Afridi and the French destroyer Bison, both of which were hit by bombs and subsequently sank. Later, a German claim in great detail was put out to have sunk a British battleship and a cruiser of the " York " class. There was no truth whatever in this claim and the Admiralty issued a denial.

That was the end of the Allied campaign in central Norway, but the air offensive both on aerodromes and ships, by both the Fleet Air Arm and the Royal Air Force, continued unabated ; and the submarine attacks on German communications through the Kattegat, both by minelaying and with torpedoes, were also uninterrupted. On May 4, a Swedish ship, the s.s. Monarch, laden with wood pulp was on her way to Germany under the charge of a German prize crew when she was intercepted off Stavanger by a British submarine. Four of the prize crew were taken prisoners on board the submarine and the remainder of the Swedish crew were ordered into their boats and the ship was then sunk by a torpedo.

On May 10 and 11 the Fleet Air Arm made attacks at Bergen. In the first they reported having made three hits on a German warship, believed to have been the sloop Bremse, a gunnery training ship of 1,250 tons ; in the second, they fired two of the oil storage tanks a short distance from the city. The remaining tanks were the targets of both the Fleet Air Arm and the R.A.F. on May 17, while on May 19 the R.A.F. attacked the Vaarnes aerodrome at Trondheim. On May 27 and 28 no less than thirteen German aircraft were destroyed in the Narvik area by R.A.F. fighters, and on May 30 a reconnaissance aircraft of the Coastal Command, sighting a German supply ship in Bergen Harbour, attacked her with bombs and set her on fire ; the aircraft was attacked by six enemy fighters, but eluded them in the clouds.

At the beginning of May, the attitude of Italy became more and more equivocal, indicating the probability of an early Italian declaration of war. To provide against this, the Allied forces were reassembled in the Eastern Mediterranean and on May 3 a number of British and French battleships, accompanied by destroyers and submarines, arrived in Alexandria Harbour, to be joined two days later by cruisers and more destroyers. This Fleet was under the command of Admiral Sir Andrew Cunningham, the British Commander-in-Chief in the Mediterranean. The greater part of it was British but, presumably because sufficient numbers of British ships could not at the time be spared from other service, it was reinforced by a smaller number of French ships. The assembly of this Fleet gave much satisfaction in Egypt and the Near East generally. There was, however, no further activity in the Mediterranean during the month, but on May 31 Italy broke off the negotiations that had been proceeding amicably with Great Britain for the conclusion of an agreement on the subject of contraband.

On May 10, Holland, Belgium, and Luxemburg were invaded without warning, and the Navy immediately put into operation plans that had been prepared for action to deal with that contingency. These plans were not very elaborate, for the smaller countries up to then had pinned their faith to a very strict observance of neutrality and had thus refused even to concert arrangements with the British authorities to deal with any German aggression. British plans provided for four operations :

1. British destroyers and sloops were sent to various Dutch ports to support the Dutch Navy and Army in any way within their power, to keep up communications with the British Government—all ordinary means were likely to be cut off in the event of an invasion—to arrange for, carry out, and protect the evacuation of British subjects and other refugees whom it might be desirable to bring away by sea.
2. Arrangements were made to provide naval gunfire in support of any military operations that might take place close to the coast.
3. Minesweepers were sent to keep Dutch ports clear of magnetic and other mines which would certainly be laid in them by German aircraft, as soon as the invasion started.
4. British minefields were planned at sea in positions which would hamper or prevent the approach of any German sea forces which might be sent to co-operate with their invading army.

Within two hours of the Germans' having crossed the frontier of Holland, the British destroyers, minesweepers, and minelayers sailed in accordance with their orders drawn up beforehand. The destroyers, which were sent to Ijmuiden, Hook of Holland, Amsterdam, and Flushing, reached their destination first, quickly followed by the minesweepers, which at once got to work on the entrance channels of all four ports, and swept them practically continuously up to the time they were withdrawn after the Dutch capitulation four days later. Both were targets for intense bomb and machine-gun attack from the first moment they arrived in Dutch waters. The minelayers laid their protective minefields in German waters the same night, exactly as planned without interference, merely reporting laconically " operation completed " when they had finished.

The calls on the services of the destroyers were incessant from the first. The chief need was for A.A. defence of the ships bringing refugees away, and the destroyers themselves brought away all they could carry while doing that service. Their first task was to arrange for the removal of British subjects, but as soon as that slacked off, they rejected no appeal for rescue. One destroyer brought away Princess Juliana and her infant children to England, for it became clear that the enemy was fully informed of their whereabouts and movements, and was determined to compass their destruction if he could. He was bombing and mining the port from which they left, and as the destroyer left the quay, a magnetic mine was dropped in the channel only 40 yards ahead of her. Fortunately it exploded prematurely on hitting the water and the destroyer, though she had to steam through the column of water it sent up, was unharmed. The next vessel to leave the quay was blown up and sunk by another magnetic mine.

Three days later another destroyer was able to do the same service for Queen Wilhelmina. Captain Halsey, the senior officer of the flotilla, had his ship alongside the quay at the Hook of Holland, unemployed for the moment since the port was not under bombardment, though bombs were falling not far away. On being told that the Queen of Holland wished to speak to him on the quay, he hastily roused himself from a much-needed rest—the first for more than twenty-four hours—and went ashore to wait on her. He found a very calm and dignified lady, attended by a suite who were obviously much concerned for her safety, since enemy planes were passing overhead and the attack on the quay might evidently be resumed at any moment. Speaking very deliberately she told him that she wished to go to Flushing and asked if he knew the way ; to which he replied, with truth, that he knew the positions of both the British and German minefields though he was not fully informed about the Dutch, but that a destroyer could leave with Her Majesty in ten minutes. The information that was lacking being supplied, Her Majesty walked on board very deliberately—too deliberately for the taste of some of her suite, feeling their responsibility for her safety—and the destroyer left. Another immediately took her place at the quay.

Almost immediately afterwards the bombers turned their attention to The Hook and thousands of refugees came to the quay asking for passage. The destroyers did all they could. Four hundred refugees were sent off in one of the larger destroyers safely, but as soon as she was clear, one of the smaller destroyers was hit by a bomb and disabled. Captain Halsey sent her off in tow of another, both full of refugees, and then took out another load in his own ship, transferring them outside to a half-full Dutch steamer so that he could return and himself take charge again inside the port. Later he went up the coast to Scheveningen, to embark the staff of the British Legation from The Hague, sinking by gunfire some German flying-boats which he sighted at anchor off the coast in the darkness on his way back.

A British battalion was sent to The Hook just before the Queen left, to protect the place of embarkation while the rescue of refugees was going on ; as usual, the advance party was composed of Royal Marines. Their experience was typical of many undergone by detachments of the sea regiment. An order reached the R.M. Headquarters at Portsmouth at 8 p.m., on Saturday, May 11, that a detachment of 200 men was needed at once " for a defensive role "—a hurry call to the like of which the Marines have always been accustomed throughout the last two centuries. Within two hours they were on the road, they embarked in destroyers at Dover in the small hours of the next morning, and before daylight they had disembarked at The Hook and had taken over the defence of the quay from the sorely harassed Dutch troops then holding it, who were badly needed further inland to deal with the German parachute troops who were fluttering down all over the surrounding country. They took charge of the quay, both its defence and the control of embarkation from it ; they were alone for twenty-four hours, after which they were reinforced by the Army, who in order to free more Dutch troops moved out and held a larger area; but they remained only thirty-six hours, for the general order for withdrawal came on the Tuesday morning. The Marines were the last to leave. They had been under practically incessant bomb attack throughout their stay and the C.O.'s post on the quay was at one moment demolished by a bomb; but they had no casualties. The heaviest single attack of all was made, just as they were leaving in destroyers, by thirteen German bombers, using both bombs and magnetic mines.

Somewhat similar duties were performed at Ijmuiden and Amsterdam by a party of 130 seamen under a commander, who were sent there on the Friday, except that they were not charged with defence, as the enemy was not in the immediate vicinity of the city. At first they were merely keeping touch with the Dutch, organising refugee traffic and minesweeping; later, when capitulation was seen to be inevitable, they were asked by their hosts to turn their attention to demolition and work of ensuring that resources of the port should not be available to the Germans when they finally got possession of it. This they did with a will.

The most important things to be destroyed were the large stocks of oil fuel at Amsterdam, the canal from Amsterdam to Ijmuiden and the locks, quays, and docks at the latter port. The oil stocks, however, could not be fired until everything had been brought away from Amsterdam, for they stood close alongside the canal, traffic in which would be made quite impossible once the oil was set alight. It was necessary to delay that act, therefore, until after the withdrawal of a certain British force which, for the first time in history, was operating on the Zuider Zee.

This consisted of six motor torpedo boats, which had been sent post haste from Harwich in response to a request from the Dutch for assistance in dealing with the reported crossing of the Zuider Zee by Germans from the northern provinces of Friesland, which they had rapidly overrun on the first invasion. If this move had been successful, the Germans would have been able to take in rear the Dutch forces which were holding the western provinces of North and South Holland and defending their principal cities; so it was of the first importance to prevent it. The story of operations of the motor torpedo boats has not been made public and it is not known whether they actually engaged any Germans on the Zuider Zee or whether their mere presence prevented the attempt at crossing. In any case they remained there until the last moment and were withdrawn only when the demolition of the Amsterdam–Ijmuiden Canal was imminent.

It was not possible to destroy the lock gates of the canal themselves without doing irrepairable damage to the city of Amsterdam, chiefly the poorer quarter, because much of it is below sea-level. The method adopted, therefore, was to block the canals and locks by sinking ships in them in such a condition as to make their removal as difficult as possible. The lock gates were then closed and the machinery for opening them was broken up. All cranes, power houses, warehouses, and all the equipment necessary to the working of the great port, were wrecked and destroyed as far as the time and resources would permit. All this was done in a space of little more than twenty-four hours, under constant bombardment and machine-gun fire from German aeroplanes.

It was related by a British officer in charge of the naval party that he had reserved one trawler to take him and the last of his men out to the destroyers and other craft, which were removing refugees and generally co-operating in the demolition, as soon as his work was done or when the moment came that it was impossible because of the enemy's advance to remain any longer. While he was otherwise engaged, however, an enthusiastic Dutch officer, who needed one more ship to complete the blocking of the last lock gate, finding nothing else except the trawler which was to take the British away, sank her to make the blocking complete. That left the British commander and his party with nothing to take them away; but they were not dismayed and rowed themselves out in boats and small craft as soon as dusk gave them protection from German air attack.

The Dutch capitulation was made on Tuesday, May 14, and by that night all British ships and British naval and military parties, together with such ships of the Dutch Navy and Mercantile Marine as it was possible to remove, had been brought away from Dutch ports to England. The Germans claimed to have inflicted serious damage on British ships in the five days of the Dutch invasion. These claims varied from day to day, even from hour to hour. One of them was that three cruisers and four destroyers had been sunk, while two more cruisers had been severely damaged, all by bombs or mines. On May 14, the claim was somewhat reduced to one of having sunk two British cruisers and one destroyer by bombs, one, and one 25,000-ton steamer by artillery fire, and damage to 8,000-ton steamer.

Actually throughout the five days of Dutch co-operation, no British ship was either lost or seriously damaged, though some were damaged to a small extent and there were many narrow escapes, one of which has been described. This immunity, however, was not maintained throughout operations further south, as the enemy successively overran Belgium and Northern France. On May 15, the destroyer Valentine, supporting the flank of the Allied Armies by anti-aircraft fire from the sea, was hit by a bomb and had to be beached off the Dutch coast. A day or two later, the Whitley and Wessex, "V" class destroyers, which had been converted into anti-aircraft escort ships, were similarly lost, the Whitley being beached like the Valentine, though the Wessex was sunk. There were four casualties in the Whitley, twenty-one in the Wessex, and they were small also in the Valentine. In the same period, the French Minister of Marine announced the loss off the coast of Holland of the submarine Doris, the destroyer l'Adroit, and the supply ship Niger. There were no casualties in the two latter.

As the tide of battle spread southwards, the sort of operations that have been described in Holland were required further south. On May 25, demolitions similar to those described at Amsterdam and Ijmuiden were needed at Boulogne, and they too were carried out by a British naval party and completed only as the advanced German forces were actually entering the town.

The withdrawal from Dunkirk.

(British Official photograph.)

UNIV. OF CALIFORNIA

The same day it became evident that the German occupation of Zeebrugge was imminent and it was decided to block the entrance of the canal there. The first attempt to do that failed owing to fog, the block ships grounding on the side of the channel to seaward of the lock gates. It was repeated twenty-four hours later and this time it was completely successful, the lock gates being opened and destroyed and two block ships, filled up with concrete, being jammed into the entrance of the lock at high water and there sunk.

When the Germans broke through the Allied line at Sedan their rapid advance to Amiens and Boulogne had cut off the British Army from their base of supply at Havre. An alternative line of supply was immediately established to Dunkirk and the Armies operating in Belgium were supplied from there from May 21 onwards. The surrender of the Belgian Army on May 28 finally made it clear that the British Army must be withdrawn and the withdrawal from Dunkirk started on the following day.

The epic story of the withdrawal of the British and French Armies from Dunkirk has been told often elsewhere, and it is not intended to relate it again here in full. It will suffice to record that a flotilla of destroyers, minesweepers, sloops, yachts, torpedo boats, and other naval vessels to the number of 222, assisted by coasters, ferry boats, pleasure steamers, motor boats, lifeboats, yachts, sailing boats, and even river rowing boats to the number of 665, in the space of seven days from May 29 to June 4, brought away from the port of Dunkirk and the open beaches adjoining it Allied troops to the number of 335,000. The whole of the arrangements for this great armada were in the hands of Vice-Admiral Bertram Ramsay, commanding at Dover, who was afterwards knighted for his services.

That it was possible to carry through this great achievement was the result of two things. The first was that a week before, the Admiralty had just completed a census of boats and small craft all round the coasts of Britain, so that full information of what craft were available was in the hands of the Admiralty when the need arose for them to be used. The second was the response from all sides when an appeal was made for crews to man the boats that were wanted for the assistance of the Army in its need. Not only seafaring men, yachtsmen, and longshoremen, but people from all walks in life and of both sexes came forward with enthusiasm to help. The attitude of every boatowner was, without exception, " please take my boat and me with it."

The withdrawal was carried out under continuous bombardment from the air, and in the later stages from artillery. The bombing aircraft were kept in check while it was possible to maintain fighter patrols over Dunkirk, for the Hurricanes and Spitfires were more than a match for the Dorniers and Heinkels ; but the R.A.F. at that date was not strong enough to keep patrols in the air without intermission, and in the intervals when there were none there, considerable damage was done and a number of ships were lost, amongst them, on May 29, the first day of the withdrawal, the destroyers Wakefull, Grafton, and Grenade, and the trawlers Melbourne and Cape Passaro.

While the tide of war had spread southward through Holland and

Belgium to France, the little campaign in the north of Norway was still dragging on its weary progress. It became a race between the German forces working their way northward from Namsos, the northern extremity of the railway, and the Allies—British, French, and Polish—closing in on Narvik. On May 2 the Germans' contribution to the war in that area was to bomb a Norwegian hospital ship on board which twenty-nine people were killed. The next day German bombers attacked a troop convoy which was escorted by, amongst other men-of-war, the Polish destroyer Grom. They were flying very high, for the A.A. fire of the escort was more than they could face at a low height, so that it was little more than pure chance that one of their heavy bombs should have hit the Grom. She sank at once with the loss of one officer and sixty-five men. By a coincidence it was only two days later that the Polish Navy was reinforced by handing over to it a British destroyer at Malta.

On May 13 a force of French troops, supported by light tanks, were landed at Bjerkvik in the Herjangs Fjord, in order to take in rear the Germans who were opposing the advance of the British force from the north. The landing was successful, but it needed another sixteen days before Narvik itself and the railway into Sweden were captured.

This was not accomplished without losses to the naval force engaged. On May 19 the cruiser Effingham was lost through striking an uncharted rock, fortunately without casualties. A week later the A.A. ship Curlew was sunk as the result of bomb damage, and in her case too the casualties were fortunately light. The disadvantage under which the Allies laboured, in this sphere as in Central Norway, was that of air inferiority ; the Army was obliged to rely on the Fleet Air Arm for their air support, and that, of course, was a heavy drain on the resources of that service, which were strictly limited. Moreover, although no other ships were lost in the campaign at that time, it is not to be supposed that they escaped damage, in view of the intensity of the air attack to which they were subjected in very confined waters. It was very evident that the Narvik campaign was a very heavy drain on naval resources just at the time when they were being subjected to an increasing strain. Once the port was captured it became a matter for serious consideration whether it was worth while locking up there the considerable forces that would be necessary to hold it against the attacks, on an ever-increasing scale, that the enemy would be able to bring against it as they consolidated their hold on the remainder of Norway.

Enemy minelaying, by aircraft and submarines, continued throughout the month, though with slightly decreased intensity. It was evidently his intention to continue to occupy the attention of minesweepers and convoy escorts in British waters to a certain extent, so as to discourage any tendency to divert them to the Norwegian campaign ; and at least one U-boat operated off the Spanish coast where the tanker Telena was attacked towards the end of the month. On April 30 an aircraft loaded with one, or perhaps two, magnetic mines lost its way and was shot down in the town of Clacton-on-Sea. The mines exploded and devastated an area of nearly a square mile; at least fifty houses were so badly damaged that they had to be demolished; two people were killed and 154 injured. On May 1 a number of machine-gun attacks were made on ships and a trawler off the East Coast, and also on two merchant ships in harbour. On May 9 two Heinkels were shot down by fighters off the east coast of Scotland, and there was much enemy air activity off the south-east coast of England that evening. Early the next morning a number of incendiary and high-explosive bombs were dropped in Kent—the first to be dropped deliberately in England. On May 15 the Italian merchant ships Foscolo and Fidelitas were attacked off the Dutch coast, on their way from Antwerp back to the Mediterranean, and many attacks were made on ships near the south-east coast of England during the rest of the month.

The worst outrage committed by the German Air Force during this month, however, was the absolutely deliberate and intentional bombing of two hospital ships in the harbour of Dieppe on May 21. The ships were first bombed and set on fire, regardless of their clear markings as hospital ships, and when the unwounded crews and nurses tried to rescue the patients and take them ashore they were attacked with continuous machine-gun fire.

Holland was overrun and occupied in four days, but the effect of that act of wanton aggression, though it gave the Nazis control of the land and harbours of the Dutch, was to give to Britain the whole of the large Dutch Mercantile Marine and a welcome reinforcement in the submarines, sloops, and minesweepers of the Dutch Navy, which were able to get away from Dutch ports and follow their Sovereign to England before the Germans could seize them. Moreover, twenty-six German merchant ships which had been sheltering in the ports of the Dutch East Indies since the outbreak of war, were seized on the day of the German attack on Holland, and thus were placed at the disposal of the Allies. Allied troops landed at the Dutch colonies of Curacao and Aruba in the West Indies on May 12 in order to protect the oil installations against sabotage by the large numbers of Germans in those islands; the latter were at once interned, and the Allied troops were replaced by Dutch as soon as they could be transported thither. On May 10, too, British troops landed in Iceland, when the most solemn assurances were given to the Icelandic Government that the reason of their presence was merely to ensure that the country should not be seized by Germany, and that they would leave on the conclusion of the war. They were later reinforced by Canadian troops.

On May 17 evidence became public that there was a German raider at large in the southern ocean, when the South African Government announced that a minefield had been discovered off Cape Agulhas. As far as was known no ship had been lost or damaged in it, and steps were at once taken to clear it.

The losses of H.M. ships already recorded were not the only ones during May. On May 6 the German radio described how a British submarine was "captured" in a minefield in the Kattegat; and on May 11 the Admiralty announced that H.M.S. Seal was overdue and must be considered lost, but that enemy reports suggested that some of her company might be prisoners. In December the Germans announced that the Seal had just been re-launched after being repaired and improved in a German dockyard. The circumstances in which the enemy was permitted to make this capture have not been elucidated. On May 22 the Admiralty announced the loss of H.M.S. Princess Victoria (minelayer), with three of the thirty-one ratings in her crew, by an enemy mine. The locality of her loss was not disclosed.

JUNE.

June was a momentous month in the progress of the war. The first few days saw the completion of the great withdrawal from Dunkirk, leaving the German Armies in possession of Belgium and Northern France, but held on the line of the River Somme by the French and such British forces as could be rushed across to join them. On June 5 the new German offensive started and made rapid progress. On June 8 the Allied forces withdrew from Narvik and the whole of northern Norway. On June 10 Italy declared war on Britain and France. On June 17 Marshal Petain assumed the reins of government in France and asked for an armistice.

It was at 10.30 p.m. on June 3 that Captain Tennant, the British Senior Naval Officer at Dunkirk, who had been in charge of the embarkation, reported to the Vice-Admiral, Dover, "Embarkation completed," and himself withdrew with his naval party of 12 officers and 150 men. A few stragglers succeeded in getting away in the course of the next few days by various means, but the whole of the miscellaneous flotilla which had been engaged on the great task of withdrawal without intermission for a week was brought away that night, less those that were lost.

The losses, though not heavy in view of the conditions under which the withdrawal was conducted, were sufficiently serious. Besides the destroyers of which the loss has already been recorded, the Basilisk, Keith, and Havant were sunk by bombs; and of the minor war vessels which had been employed there to the number of more than 170, twenty-four were lost. Their names were:

H.M.S. Skipjack, Fleet minesweeper.
H.M.S. Mosquito, gunboat.
H.M.S. Grive, Fleet Air Arm tender.
Five paddle minesweepers: Brighton Belle, Gracie Fields, Weverly, Medway Queen, Brighton Queen.
Crested Eagle, minesweeper.
Eight trawlers: Polly Johnston, Thomas Bartlett, Thuringia, Calvi, Stella Dorado, Argyllshire, Blackburn Rover, and Westella.
Three drifters: Girl Pamela, Paxton, and Boy Roy.
Two armed boarding vessels: King Orry and Mona's Isle.
Comfort, dan-laying vessel.
St. Fagan, tug.

On completion of the withdrawal, the King sent the following message to Mr. Churchill as Minister of Defence:

> "Buckingham Palace,
>
> "I wish to express my admiration of the outstanding skill and bravery shown by the three Services and the Merchant Navy in the evacuation of the British Expeditionary Force from Northern France. So difficult an operation was only made possible

by brilliant leadership and an indomitable spirit among all ranks of the Force. The measure of its success—greater than we had dared to hope—was due to the unfailing support of the Royal Air Force and in the final stages the tireless efforts of naval units of every kind.

" While we acclaim this great feat in which our French Allies too have played so noble a part, we think with heartfelt sympathy of the loss and sufferings of those brave men whose self-sacrifice has turned disaster into triumph.

" (Signed) GEORGE R.I."

On June 8 the Allied Forces were withdrawn from Narvik; and the withdrawal was announced by the British Government three days later in the following terms:

> " With the foreknowledge and understanding of His Majesty the King of Norway and the Norwegian Government, the British and French troops have been withdrawn from northern Norway. The King of Norway and the Norwegian Government are now in Great Britain and a proportion of the Norwegian Armed Forces have been withdrawn from Norway in order to be reformed for action on other fronts.
>
> " The capture of Narvik enabled action to be taken to prevent the Germans using it for the export of iron ore for a considerable time. Troops and material from Northern Norway can now be used to greater advantage elsewhere in the main struggle to defeat German attempts at domination, upon the outcome of which Norwegian independence finally depends."

This was a sorry ending to the whole Norwegian campaign, but the decision to withdraw was without doubt inevitable. A stage had been reached at which quite small German forces were containing substantial British forces, without prospect of the disparity being redressed, and in particular the naval force locked up in attendance on the military force ashore was badly needed elsewhere. It was unfortunate that the withdrawal was marked by serious losses of ships in circumstances that have never been explained, the Glorious, the Acasta, and Ardent, the empty transport Orama and the tanker Oil Pioneer.

These ships appear to have been sunk by a force of German surface ships, which certainly included the battleship Scharnhorst and possibly her sister ship Gneisenau, for on June 9 a German communiqué stated that those two ships had been operating in the North Sea in support of the German forces at Narvik the day before. They gained contact with the Glorious at a time when she was not in company with any other force and by some mischance none of her signals got through, so that the Admiralty were unaware of what had happened until it was announced by the Germans, when of course it was too late for the German ships to be intercepted. It is clear, however, that the end of the Glorious and her attendant destroyers was in accordance with the best traditions of the Navy. The German News Agency, according to Reuter, issued the following account of the action in which they were sunk:

> " Towards the evening of June 8 units of a German naval patrol in the Arctic Sea met the Glorious, which was accompanied by two destroyers.
>
> " The Glorious attempted to let her aeroplanes take off, but the first German salvos prevented this. The two destroyers threw out smoke screens, which forced the German guns to pause in their fire. The British destroyers fired torpedoes again and again, and the German units had to manœuvre skilfully to avoid them. Concentrated fire put the first destroyer out of action and then the water closed over it.
>
> " The Glorious tried to make off, but she could not get up full speed on account of the damage done to her. The fight continued until," according to the German eye-witness, " the glow of fire was to be seen in the Glorious. Slowly the giant began to

turn on to her side. Pouring out flames and smoke she drifted with the wind. A moment later she sank.

"But the destroyer did not give up. Our guns silenced her forward guns but the aft guns continued firing. More salvoes from our guns and the enemy was at length silenced. The destroyer was in flames and slowly began to sink. Steam arose, probably through the boilers bursting. Then the waves closed over these brave opponents too."

The first German communiqué implied that there were some hundreds of survivors from these ships. The only survivors landed in this country were thirty-six officers and men who had been picked up from a raft by a Norwegian ship.

It was afterwards revealed in Parliament that there were a considerable number of survivors afloat on rafts for some time and that both His Majesty's ships and aircraft passed not far from these rafts, but unfortunately, probably owing to poor visibility and bad weather, they did not sight them. The number of survivors who were picked up by the Germans has not been published. A number of questions were asked in Parliament on November 7 about this incident, with the object of elucidating further details, but the First Lord of the Admiralty declined to give information regarding the conduct of operations and the full story will presumably have to wait until history comes to be written after the war.

On June 11 aircraft of the Coastal Command reported having located a considerable naval force in Trondheim Harbour, but its exact composition was not specified. They attacked and made hits on two enemy cruisers and a transport; it was believed that other warships might also have been hit. The anti-aircraft fire was severe and they were also opposed by enemy fighters; two British machines were lost. Thirty-six hours later Skuas of the Fleet Air Arm attacked at dawn and reported one hit with a heavy bomb on the Scharnhorst abaft the funnel and one other possible hit. Part of the German force would seem by that time to have left Trondheim.

A week later H.M. submarine Clyde was patrolling off Trondheim Fjord in very heavy weather and when she sighted the two large warships, escorted by destroyers, putting to sea at 10 p.m.—at which time it is still broad daylight in this latitude at midsummer. Despite the difficult conditions the Clyde attacked, but was compelled to fire her torpedoes at long range. One torpedo was heard to hit but counter-attack prevented the Clyde from observing the result.

The next morning torpedo bombers of the Fleet Air Arm attacked the Scharnhorst again. No hits were made on the battleship, but one of the escorting destroyers was hit by a torpedo; two aircraft were lost in this attack. An hour afterwards the Scharnhorst was attacked again by bombers of the Coastal Command who claimed three direct hits with heavy bombs for the loss of three aircraft. Two enemy fighters working from Stavanger aerodrome, which was providing protection for the ship, were shot down. Ships of the Home Fleet had been despatched to engage her when first news of the Scharnhorst being at sea was received, but unfortunately the visibility deteriorated rapidly and she was able to escape without being located. When next seen from the air she was in the floating dock at Kiel.

No sooner was the withdrawal from Dunkirk completed than the tide of battle began to sweep southwards through France and the same sort of operations on a smaller scale had to be conducted at various places along the coast. A few scattered accounts of action at various places—St. Valerie, Havre, and St. Malo—have been made public from time to time, for example the loss of the transport Lancastria off St. Nazaire on June 17. She was lying five miles off the harbour loading up with troops and refugees who were being sent off to her in tenders and small craft. She had just completed loading, had on board some 5,000 troops and fifty to sixty civilians and was just about to sail when she was attacked by two or three German bombers. She was hit by at least three bombs—one of which fell in the saloon and killed a large number of officers—set on fire and sank very rapidly. Only about half of those on board were saved and brought away on board other ships.

It is not possible with the information available at the time of writing to give a connected story of the final withdrawal of the British troops from France. It must suffice to write that practically all of the B.E.F. which was still in France, together with the Polish regiments which were fighting with the Allies and such French forces as later decided to continue the struggle on our side, were brought away by sea from one port after another finishing up with Bordeaux.

The collapse of France, between June 5 when the new German offensive started on the Somme and June 17 when Marshal Petain asked for an armistice, was rapid. When after the second German break-through it became apparent that the whole of the French coast was certain to be overrun, it became urgent to prevent ships of the French Navy in their ports from falling into the hands of the enemy. Urgent representations were made by British liaison officers on the spot to the French authorities requesting them at all costs to get their ships away, preferably to British ports, before their naval bases fell into German hands ; but it was not until the last moment that the French naval authorities could bring themselves to admit the danger and to take action.

The most important ships were the two new French battleships the Richelieu and the Jean Bart. The former had been completed for service on April 25, but she had not actually been to sea so far as is known, except perhaps for steam trials. The latter was understood to be completed, with the exception of her main armament of 15-inch guns ; but she, although her machinery was practically complete, had not actually been to sea at all. Nevertheless both these ships were got away in time, but not to British ports ; the Richelieu went to Dakar, the Jean Bart, it is believed, to another French African port, so that they at least were safe from the Germans. Some of the older battleships and a large number of small craft, to the number of some two hundred, left French ports as the Germans advanced and came to this country, so that when the enemy finally entered Cherbourg on June 18, Brest on June 20, and the other French naval ports in turn, he gained nothing in the way of warships. There were, however, a number of French men-of-war in the Mediterranean, most of them at Oran, Algiers, Bizerta, and Alexandria, and only a few in Toulon.

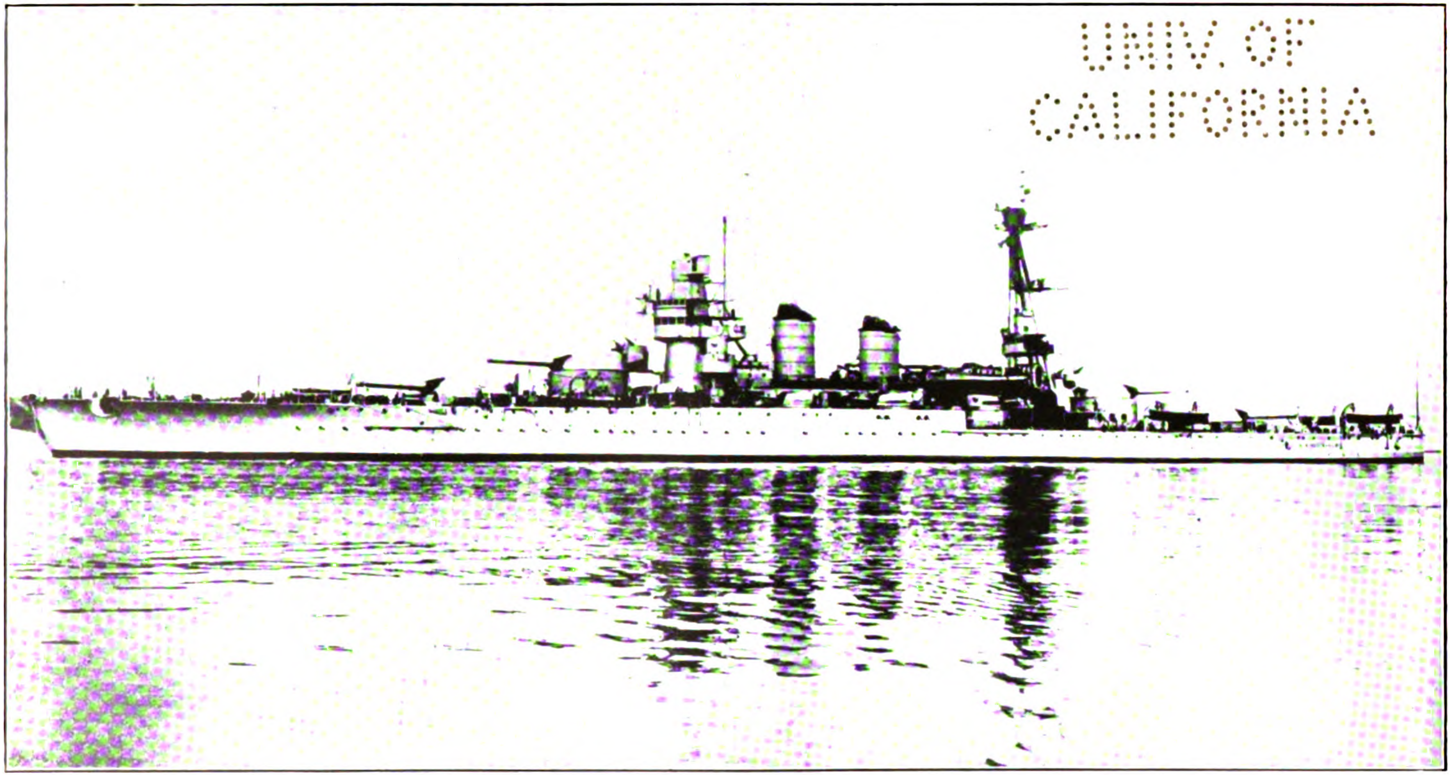
As soon as the Channel coast passed into the hands of the Germans, preparations were begun by them for the invasion of this country, long-range guns were mounted in the vicinity of Cape Gris Nez, and the collection of shipping and barges was begun in the French and Flanders ports. A number of air attacks were made on these by the R.A.F. On June 24 and 25 small reconnaissance raids on the French coast were made by British landing parties. A number of other measures against a possible attempt at invasion were taken, amongst which was an order on June 7 prohibiting any unconvoyed vessel from approaching the British coast in the dark hours.

On June 6 the Italian Government declared a " danger zone " of twelve miles from all Italian coasts, implying that minefields might be encountered anywhere within it, and instructing all ships approaching Italian ports to obtain instructions before entering the zone. At the same time all Italian merchant ships outside Italian waters were ordered to take refuge in neutral ports, and shipments of Mexican oil to Italy were countermanded. The declaration of war foreshadowed by these measures was duly made by Mussolini in one of his flamboyant speeches from the balcony of the Palazzo Venezia on June 10.

The immediate effect was the disappearance of the Italian mercantile flag from the seas. In four days Italy lost merchant shipping to a total of 210,855 tons, some 80,000 tons of which was captured by us, chiefly in British ports, and the remainder nearly all scuttled to avoid capture, a fashion which Italy seemed to have adopted from her Axis partner. This latter was evidently in compliance with orders circulated beforehand, for it happened all over the world, from the day of Mussolini's declaration of war onwards.

There were six Italian merchant ships in Gibraltar on June 10. Their crews tried to scuttle them but were forestalled by boarding parties of British seamen. On June 10, two ships, the Celina and Numbolia, were scuttled by their crews in Algeciras Bay, fearful, apparently, that British forces from Gibraltar might seize them there. The next day the Gerusalemme and Timavo, intercepted off the coast of Natal after leaving Durban the day before, by a British armed merchant cruiser, were run ashore by their crews. The s.s. Capo Nilo was set on fire by her crew in the River St. Lawrence, but the fire was put out by a boarding party from a minesweeper of the Royal Canadian Navy and the ship was saved.

The beginning of the war was marked by immediate air raids on either side. Malta was attacked the first evening, and thereafter continuously. On June 23 the thirty-ninth air-raid on the island was reported, and on June 30, the fiftieth, but despite the great density of the island's population the casualties, even at the beginning, were light. On June 11, the second day of war, it was reported that thirty were killed, all civilians, and thirty-seven wounded, of whom seven were soldiers ; but, from the first, British fighters took heavy toll of the attackers and the raids became less and less effective. Nevertheless, the islanders deserved the highest credit for their



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Italian battleship Conte di Cavour, after reconstruction.

(*Photograph by Sport and General.*)

steadiness, which was recognised in appreciative messages from the King and the Prime Minister.

In the next few days Aden, Bizerta, Toulon, Port Soudan, Berbera, and the British positions on the Egyptian frontier were all the targets of Italian air attack. On our side attacks were made on Tunia, Genoa, Tobruk, Massowa, Assab, Diredawa, and by the South African Air Force from Kenya on Moyale in Italian Somaliland in the first few days. On June 13 French naval aircraft bombed the oil tanks near Venice—one of the largest and most important oil stores in Italy.

On the night of June 11 the port of Tobruk was bombarded by some of H.M. ships from the sea—probably by H.M.S. Terror, 15-inch gun monitor, though it was not made public—at the same time that it was attacked from the air. The old cruiser San Giorgio, which was stationed there as guardship, was hit and set on fire. She was beached to save her from sinking and probably flooded to put the fire out; thereafter she became a fort and more A.A. guns were later mounted on her deck. It was also reported that two submarines which were in the port were hit and set on fire. The Italian official account admitted that "one small minesweeper" was hit and sunk.

The next day the Italian Navy had its first success when one of its much vaunted submarines torpedoed and sank the old British cruiser Calypso. But that was the highwater mark of their success. On June 14 one Italian submarine in a damaged condition took refuge in neutral Centa, and another in Algeciras. On June 16 the Admiralty announced that four Italian submarines had been destroyed since the Italian declaration of war six days earlier. On June 22 the submarine Galileo Galilei surrendered after attack to H.M. trawler Moonstone and was towed a captive into Aden. On June 24 the total destroyed was announced at seven. On June 29 the destruction of two more in the Red Sea or its approaches was announced, and on June 30 four more were reported destroyed in the Mediterranean in the preceding four days—a total of thirteen in the first three weeks of war. One of the last-named was destroyed by a flying-boat of the R.A.F., which sank yet another—making fourteen—the next day, from which three officers and a petty officer were picked up.

An Italian claim was made that their aircraft had sunk British submarines on June 19 and 24, and on June 20 that a submarine had torpedoed and sunk a French 2,500-ton destroyer, but none of these claims seems to have been substantiated.

On June 28 three Italian destroyers were located at sea, somewhere in the Eastern Mediterranean, by British aircraft and were engaged at long range by a British flotilla. One of the Italians, the Espero, was sunk, but the others escaped by high speed. Forty-four survivors from the Espero were picked up.

German attacks on British shipping continued throughout the month. On June 2 two more hospital ships, bearing all the recognised markings clearly visible, were attacked by German planes off the French Channel coast. There were no troops, wounded or unwounded, on board—only crew and nurses, who had to abandon the ships when they were set on fire by bombs. At this period the *Luftwaffe* began attacking aerodromes in England—a perfectly legitimate target—in the endeavour to hamper the British fighters which were establishing such an ascendancy. But that did not prevent them from continuing their air attacks on merchant ships and fishing boats.

On June 3 fourteen trawlers were attacked in the North Sea, but were able to give a good account of themselves with their defensive armaments and none were sunk. On June 8 a number of German bombers attacked a convoy in the Channel, without result; they were attacked by British fighters and three of them were destroyed. The following day the German announcement claimed to have inflicted damage on a cruiser, a destroyer, and several merchant ships in the North Sea, besides attacking a number of naval ports.

On June 10 an unsuccessful attack was made on an East Coast convoy by German motor torpedo boats—now called "E-boats" for short. These craft had been encountered during the Dunkirk operations; but this was the first time they had been reported on this side of the North Sea. On June 11 the Greek ship Mount Hymettus was sunk by a U-boat off the coast of Portugal. The U-boats indeed did a good deal of execution during the month, which was only to be expected in view of the depletion of the anti-submarine craft available for convoy escorts. Not only had a number of destroyers, sloops, etc., been lost in the course of the inshore operations since early April, but also in June they were still further depleted by the necessity for strengthening the Mediterranean Fleet to deal with Italy. The collapse of France later in June deprived us too of the collaboration of most of the French flotillas. The destroyers sent to the Mediterranean did excellent service there, destroying Italian submarines at the rate of two every three days; but in the meanwhile the U-boats in the Atlantic were able to work with far less opposition than was needed to keep them in check. The result was reflected in the increased numbers of ships lost.

During the month three armed merchant cruisers were torpedoed by a U-boat and subsequently sunk, fortunately with very small loss of life. On June 10 the loss of the Carinthia was announced, two officers and two ratings being killed; on June 15 the Scotstoun, two officers and four ratings being lost; and on June 21 the Andania, without loss of life, though two ratings were injured. On June 10 the Vandyk was torpedoed and sunk in Norwegian waters; only two officers and five ratings were killed, but the remainder of her company, 29 officers and 132 ratings, were taken prisoner. The loss was not announced until July 17. Another loss which occurred during the month was that of the patrol yacht Campeador V, remarkable because the average of her four officers—the owner and three of his intimate friends—was over sixty, while no bad weather or hard work could ever tire them out. A memoir of them and their work by Mr. Cecil Hunt was published later in the year.

Dominion ships lost included H.M.C.S. Fraser (destroyer), sunk in collision in the Gironde during the final stages of the withdrawal from France, and H.M.I.S. Pathan (sloop), sunk by enemy action while on patrol—presumably by striking a mine, since no details of any encounter with an enemy were published. The loss was announced too of the famous Polish submarine Orzel, some of whose company were later reported to have been taken prisoner.

One of H.M. ships which was very nearly lost during the month, but was saved by perseverance and skill, was H.M.S. Kelly, flotilla leader, Captain Lord Louis Mountbatten. She was torpedoed in enemy waters by an E-boat which approached at night in fog patches. The torpedo exploded under the bridge and laid the forward boiler-room open to the sea, almost breaking the ship in two, for she was held together only by her upper deck. She was towed home despite gales which compelled her abandonment more than once and constant enemy air attack. For the whole of one night she had to be evacuated, for the sea was so high that she was unmanageable in tow and there were U-boats about. But ninety-one hours after being hit she reached a shipyard; and six months later she was in service again.

There was some evidence of raiders at large, when on June 19 the liner Niagara was sunk by striking a mine just outside Auckland, New Zealand.

JULY.

So great was the disorganisation in France after the collapse that it appeared in this country that there might be grave danger of the French Navy falling into the hands of the enemy. The Armistice terms dictated to France by Germany dealt with the matter as follows in Clause 8:

> "The French Fleet, except that part of it left free for the safeguard of French interests in the Colonial Empire, shall be collected in ports to be specified, demobilised, and disarmed under German or Italian control. The German Government solemnly declare that they have no intention of using for their own purpose during the war the French Fleet stationed in ports under German control, except those units necessary for coast supervision and minesweeping. Except for that part (to be determined) of the Fleet destined for the protection of colonial interests, all ships outside French territorial waters must be recalled to France."

The "ports to be specified" were afterwards defined as the home ports of the respective ships in metropolitan France.

It was quite clear from these terms that the only safeguard against the danger of the French Fleet coming into Nazi hands was the "solemn declaration" of the German Government—and enough solemn declarations have been torn up by Hitler, as soon as it seemed to him advantageous to do so, to make it quite clear that this was no safeguard at all. Once the French Fleet was in such a position that it was possible for the Germans to lay their hands on it, there is no doubt that Hitler would seize it as soon as he wanted to, probably alleging some breach of the armistice terms by the French as justification for doing so.

The danger, in the case of the Germans getting possession of the French Fleet, was perhaps not immediate, for it would have been impossible for them to man the ships for some considerable time. But the prospect of the transference from the Allies to the Axis of the battleships, cruisers, and perhaps most dangerous of all, the seventy destroyers and ninety submarines of the French Fleet, thus entirely altering the material balance of naval strength, was one which the British Government could not countenance without taking steps to provide against it.

Accordingly steps were taken on the morning of July 3 to take control of all French men-of-war in British ports and Alexandria. The French officers and men were given the option either of continuing the war with us, the British Government undertaking to provide their pay and maintenance, or of returning to France. In British ports, two battleships, two light cruisers, eight destroyers, an unspecified number of submarines, and some two hundred mine-sweepers, sloops, and other minor warships were taken over. There was an unfortunate misunderstanding on board the submarine Surcouf —the largest submarine in the world—which led to a scuffle in which Commander Sprague, R.N. and one French officer lost their lives. But apart from that the episode was on the whole amicable, for the French officers and men appreciated the British necessity to ensure that the German Navy should not get possession of their ships. A large number of them elected to continue the war in alliance with us, joining what had become known as the " Free French Forces " of whom the head was General de Gaulle and the senior naval officer Vice-Admiral E. H. D. Muselier. To these, such of the French ships as they could man and could usefully employ were handed over. Many of them, however, felt that they could not bring themselves to expose their families, who would be at the mercy of the Germans in France, to the reprisals which are one of the favourite methods of the Gestapo and that they must therefore return to France. Arrangements were made to give effect to their wishes as soon as it was possible to organise transport.

At Alexandria a different arrangement was made. Admiral Godfroy, who was in command of the French contingent, and whose relations with the British officers had been particularly close and amicable, recognised that in the presence of overwhelming British forces he had no alternative but to accede to their requests rather than to obey the German demand with which Marshal Petain had ordered his compliance. Admiral Godfroy agreed to immobilise his forces in Alexandria—one battleship, several cruisers, and a number of destroyers and smaller craft—by landing all their ammunition, torpedo warheads, breech-blocks of guns, all oil fuel, except the small quantity needed for maintenance, and repatriating the whole of the French crews beyond small parties of caretakers for each ship.

That provided for all the French ships over which direct British control could be asserted. There were, however, others. At Mers el Kebir, the man-of-war harbour of Oran, there were the modern battleships Dunkerque and Strasbourg, the older battleships Provence and Bretagne, three cruisers, and a number of destroyers and submarines ; at Dakar, the battleship Richelieu.

On the morning of July 3 a British destroyer took to Oran Captain Cedric Holland, who had been Naval Attaché in France up to the capitulation and was well-known to all the senior officers of the French Navy, bearing a letter addressed to Admiral Gensoul, commanding the Oran Fleet, from Vice-Admiral Sir James Somerville, who commanded a British force which was approaching the port. The letter explained that, as it was essential for the British Navy to provide against the danger of French ships falling into the hands of the enemy, Admiral Gensoul was invited to bring his ships forthwith to British ports. Once there, he was further invited to continue the war in alliance with Britain ; but if he felt that he was under the obligation to discontinue the war, then his ships should be manned by reduced crews who would be repatriated to France immediately on arrival. An assurance was given that the ships in these circumstances would be restored to France at the end of the war. If the Admiral felt that he was under an obligation to ensure that his ships should not be used against the enemy, then he was invited instead to take them with reduced crews to the French West Indies where they should either be demilitarised to the satisfaction of British officers, or possibly entrusted to the custody of the United States until the end of the war. If he should refuse all these honourable alternatives Admiral Somerville informed him that he must require him to sink his ships within six hours ; and failing that Admiral Somerville—who was in command of a force of strength fully adequate for all contingencies—intimated that his orders required him to use such force as might be necessary to ensure that the French ships should in no circumstances become available to the enemy.

These terms, when they were made generally known, were acknowledged by every country in the world—other than those in Axis control—to be not only fair and honourable but fully justified. Nevertheless Admiral Gensoul decided that he must refuse them, though the motives which influenced him in favour of greater loyalty to his new conquerors than to his old Allies are difficult to understand. Admiral Somerville, who arrived off the port of Oran some hours later with his flag flying in the battle-cruiser Hood, in command of a force which included two battleships, an aircraft-carrier, cruisers, and destroyers, waited for some time after the six hours specified in his ultimatum. Then, having received no acceptance, he was reluctantly compelled to open fire on the French ships which were crowded together in the harbour. He continued firing for ten minutes and aircraft of the Fleet Air Arm then attacked the French ships with bombs. The battleship Bretagne was blown up, the Dunkerque, Provence, and destroyer Mogador were so much damaged that they had to be beached, but the Strasbourg and five destroyers put to sea, presumably under cover of the smoke caused by the bombardment, and escaped to Toulon. Torpedo aircraft of the Fleet Air Arm endeavoured to stop the Strasbourg, but although one torpedo was reported to have hit her, her speed was sufficient to enable her to outsteam all the British ships.

The British Navy could never have had a more distasteful task, but it was universally admitted, particularly in the United States, that they had no alternative but to take the action that they did. Three days later in order to make quite sure that the Dunkerque, which was publicly stated by Admiral Gensoul to have been evacuated by her crew, should not be able to return to France, aircraft of the Fleet Air Arm dropped six more bombs upon her.

On July 8 similar action was taken in respect of the battleship Richelieu at Dakar. The same terms were communicated to the Captain of the Richelieu, but he, like Admiral Gensoul, felt compelled to refuse them. After dark a ship's motor boat, under the command of Lieutenant-Commander R. H. Bristowe, entered the harbour of Dakar, crossing the boom defence unobserved—a very remarkable performance. She went alongside the port quarter of the Richelieu and dropped depth charges under her stern which exploded on the bottom of the shallow harbour and damaged the propellers and rudder of the battleship beyond local repair. The motor boat's engines broke down just after she shoved off and she would infallibly have been sunk, but that the attention of the Richelieu and the French defence was at that moment distracted by a torpedo attack on the Richelieu made by aircraft of the Fleet Air Arm. Five torpedoes hit the Richelieu and almost certainly put her out of action; but the effect was not to sink the ship since the harbour is too shallow for that, but merely to make her settle down on the bottom. These methods of attack should have achieved their object—to make it impossible for the Richelieu to be transferred to France—with the minimum of casualties.

The extreme anti-British bias of the French Government, which by then seems to have been completely under the domination of Laval, was shown by the account of this incident which was published in France. It omitted all mention of the first three alternatives afforded to the French officers and baldly stated that the French were required to sink their ships within six hours. The German reaction, when the news came through of what was happening at Dakar, was characteristic. Hitler immediately telegraphed his permission to Admiral Gensoul to scuttle his ships forthwith—the height of heroism apparently, according to German ideas.

The resentment in France, stimulated by the garbled version of the British terms, which was all that was allowed to be published, was of course intense. In retaliation for what was represented as a wanton attack on a former ally, French aircraft made attacks off Gibraltar on July 5, 6, and 7. On July 12, however, the British Government informed the French Government that they would not take any further action against French ships provided they remained where they were and did not endeavour to return to France.

It was not made public what had happened to the remaining cruisers of the French Navy, which were understood at that time to be at Bizerta and other French North African ports; but it was believed that they returned to Toulon at the same time as the Strasbourg. The chief events of the month of July, however, took place elsewhere in the Mediterranean.

On July 1 the naval base at Port Augusta in Sicily was bombed. On July 5 a heavy attack was made on the naval anchorage at Marsa Tobruk by aircraft both of the Fleet Air Arm and of the Royal Air Force, while the Fleet Air Arm at the same time attacked the aerodrome at Catania in Sicily. A reconnaisance over Tobruk the next day showed two large ships aground and others evidently damaged.

Between July 7 and July 12 British forces were operating in strength throughout all parts of the Mediterranean, and the Italians' claim to control the central area of the Mediterranean was proved to be completely hollow. The full details of the operations were of course not made public at the time, but enough was disclosed to show that one of the objects was to pass a convoy through to reinforce General Wavell's Army of the Nile. The convoy appears to have been taken from Gibraltar to the central Mediterranean by Sir James Somerville's forces from Gibraltar, and there to have been transferred to the protection of Sir Andrew Cunningham's Fleet from Alexandria. The two British Fleets each approached within sight of Sicily, but as they did not join up it is more convenient to describe their proceedings separately.

Admiral Cunningham's Fleet on its way westward from Alexandria was attacked on July 8 by Italian aircraft which dropped a number of bombs. One of them hit H.M.S. Gloucester and appears to have wrecked her bridge and killed the captain and other officers; but her armament was unaffected and she continued in company with the Fleet and took her part in the events that followed.

On July 9 an Italian force consisting of the battleships Cavour and Giulio Cesare, a large number of cruisers, several of which were 8-inch gun cruisers, and about twenty-five destroyers was reported by aircraft reconnaissance. In the early afternoon contact was made between a squadron of British light cruisers and the enemy cruiser force. The Italian cruisers retired at high speed immediately on coming within range of the British battleships and so did the Italian battleships in their turn. A few salvoes were exchanged at extreme range and one hit was made on one of the enemy battleships which had twenty-nine killed and sixty-nine wounded. The range never fell below 28,000 yards and when the Italian battleship was hit their destroyers immediately laid a smoke screen behind which the whole of the Italian force retired at a speed which the British ships could not match.

Torpedo aircraft of the Fleet Air Arm attacked the enemy and reported making one hit on a cruiser, but although the enemy was pursued until the British force was within sight of the eastern shore of Sicily it proved impossible to renew the action. The British Fleet remained within sight of Sicily until the evening, despite constant bomb attacks by shore-based enemy aircraft, but no attempt was made by the enemy to renew the action. The British Fleet then proceeded to cover the convoy which by that time presumably had entered their sphere of operations. The next day, July 10, a torpedo attack was made by the Fleet Air Arm on ships in a harbour north of Port Augusta. A destroyer and a store-ship were sunk.

During the next two days the British Fleet was constantly and heavily bombed, but no ship was hit, though three casualties were caused by splinters of bombs bursting in the water close to the ships. Fighters of the Fleet Air Arm were active and shot down five enemy aircraft in the course of their bomb attacks or reconnaissance; fifteen others were reported to have been destroyed by anti-aircraft fire.

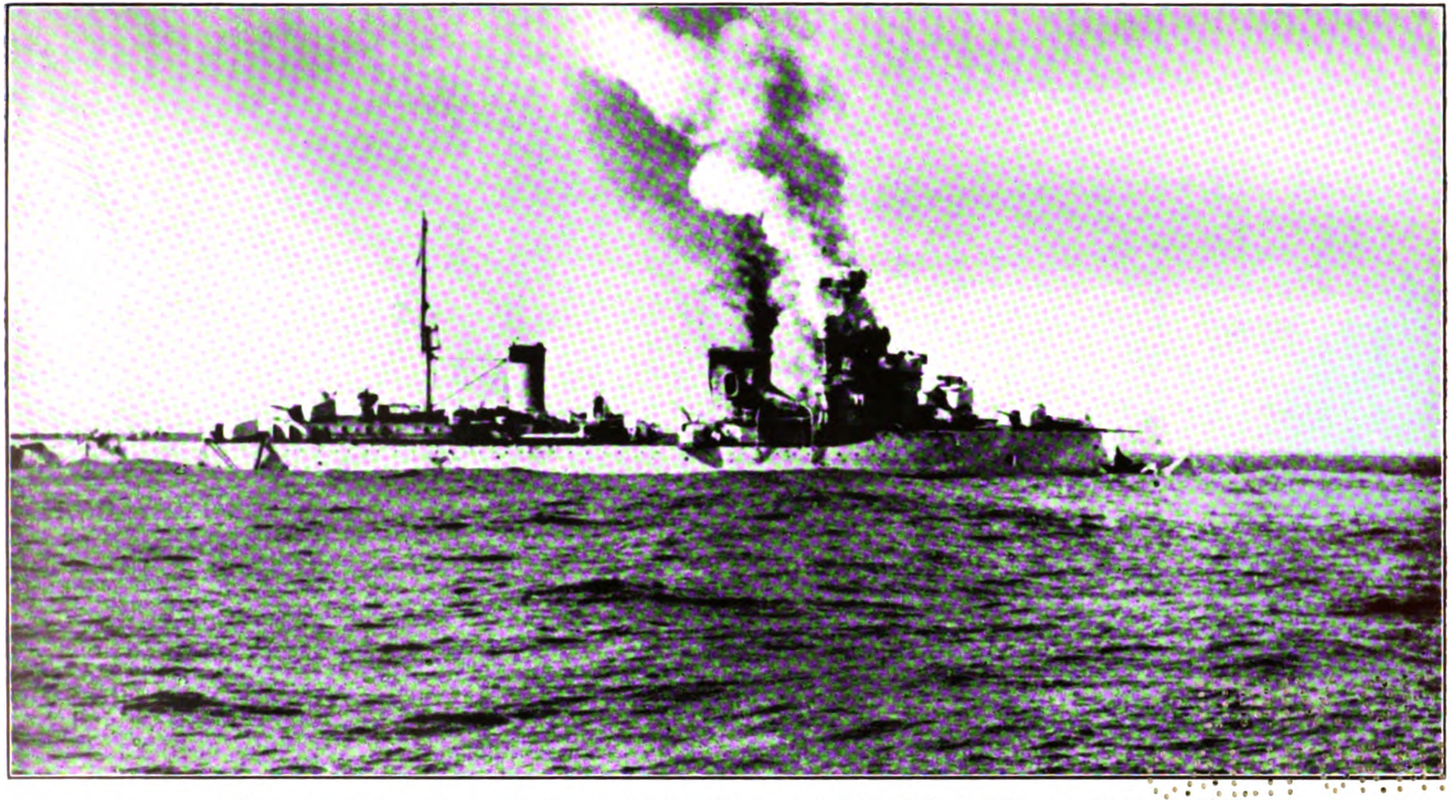
The western force appears to have encountered no surface ships, but it too was heavily and continuously attacked by Italian aircraft with even less success. Admiral Somerville reported that, although there was a number of near misses, he had no damage and no casualties in his force. According to Italian accounts this force arrived back at Gibraltar on July 11.

The Italian account showered forth glowing accounts of the Italian prowess in these encounters. According to these most of the execution appears to have been done against Admiral Somerville's force, which, according to the Rome radio, was hit no less than fifty times with heavy and very heavy bombs, "which achieved visible results," while ten of the British fighters were shot down. According to these accounts casualties on the British side were one destroyer and one merchant ship sunk; repeatedly hit and seriously damaged, two battleships, four cruisers, two aircraft-carriers, and two destroyers. The Hood, Eagle, and Ark Royal were named as having been hit by bombs and seriously damaged. The loss of the destroyer Zeffiro and one Italian submarine was admitted. The latter was probably one which was torpedoed in another part of the Mediterranean by H.M.S. Parthian.

A little more than a week later the quality of the two Fleets was again clearly demonstrated. At 7.30 a.m. on July 19, H.M.A.S. Sydney, with four destroyers in company, came into contact to the north-west of Crete with two Italian cruisers, Bartolomeo Colleoni and Giovanni Delle Bande Nere. On paper each of these ships alone is a match for the Sydney, the main armament on either side being eight 6-inch guns. Nevertheless the Sydney immediately attacked and the Italians turned to retreat. The Colleoni was first engaged and she was soon hit. One projectile appears to have disabled her engines and she stopped, to be shortly afterwards sunk by a torpedo from one of the destroyers. The Sydney transferred her fire to the Bande Nere on which hits were also observed; but the Italian ship was too fast and made good her escape. 545 survivors were picked up from the Colleoni, including her captain, who had been severely wounded and died shortly afterwards. There were no British casualties at all. Captain Collins of the Sydney was at once awarded a C.B. for his gallant conduct.

The Italian version of this engagement too was singularly disingenuous. A second cruiser of the "Sydney" class was invented, presumably in order to justify the retreat of the Italians from the inferior force. This cruiser was then stated to have been sunk by air attack while retreating towards Alexandria. It is true that air attacks were made, but there were no hits and no casualties from any of their bombs.

On July 20 another successful air attack was made on oilers and transports in Tobruk by the Fleet Air Arm. Nothing more was seen of the Italian Navy afloat in the course of the month, but their submarines continued to show themselves very occasionally, avoiding



Italian cruiser Bartolomeo Colleoni sinking after action with H.M.A.S. Sydney, July 19, 1940.

(British Official photograph.)

however the locality where they were likely to encounter British destroyers. One Italian submarine bravely sank an Iranian cargo boat not far from Haifa, but far enough for it to take forty-eight hours for the crew, in their boats, to reach the shore.

German attacks on merchant shipping were intensified during the month, though the tonnage of shipping destroyed was actually less than in June—313,000 tons against 337,000. There were numerous reports of U-boat activity in the Atlantic. On July 1 the British ship Zarian, 5,000 tons, was reported torpedoed 300 miles west of Ireland. The next day came the news that the Arandora Star, carrying to Canada 1,500 Germans and Italians who had been interned, had been torpedoed west of Ireland, with heavy loss of life—chiefly due to panic amongst the prisoners, 613 of whom were drowned. On July 15 a Panamanian steamer, Fressoula, was sunk without warning by bombs from a German aircraft when 250 miles north-west of Cape Finisterre. This was the first instance of the German use of large long-range bombers for attack on shipping far out at sea, which they greatly developed later on. It only became possible, of course, after they gained possession of north-western France.

The greatest German effort against British shipping, however, was made by air against convoys in the English Channel, though a few attempts in the same area were made by E-boats. On July 4 an air attack was made on Portland Harbour, where a naval auxiliary vessel was hit and set on fire. On July 8 a bomb attack on a convoy was countered by shore-based fighters and about eight enemy aircraft were shot down. Another on July 10 had much the same result. On July 13 and 14 convoys were attacked in the Dover Straits, and they lost nineteen in the two days. The attacks were repeated on July 19, 20, and 21—the week-ends seemed to be favoured by the enemy—on a larger scale. Hardly any damage was done to the convoys, but the toll taken of the attackers was even heavier. These attacks continued throughout the month in increasing strength, as many as 150 aircraft being employed at a time. On July 25 the score of enemy aircraft destroyed mounted to twenty-eight in the day, though, of course, in attacks of this intensity it was not to be expected that the immunity of ships from damage could be maintained.

Increasing use was made of E-boats in the Channel, though not with any very marked success. On July 24 six of them encountered one British motor torpedo boat just before dawn, but immediately retreated at high speed on being engaged by her, though not before they had suffered casualties.

The following statement issued from the Admiralty on July 26 described their attempted collaboration in the attack of the day before:

> "A convoy, consisting of twenty-one small coastal vessels, escorted by H.M. trawlers, was heavily attacked by successive waves each of about thirty German aircraft. Five small vessels were sunk. These had a total tonnage of 5,104. A further five small vessels, totalling 5,133 tons, received damage and one of these, a 2,554-ton coaster, had to be beached.
>
> "Shortly after these air attacks nine enemy motor torpedo boats were sighted

proceeding to attack the convoy. Two of our destroyers and two of our motor torpedo boats at once proceeded to intercept and engage these enemy forces. The enemy motor torpedo boats retired behind a smoke screen immediately on sighting our forces. They were chased and engaged for about fifteen minutes. The damage inflicted on the enemy was not observed owing to the smoke. While returning from this chase our destroyers were twice heavily attacked by German dive-bombers. Both ships received some damage, and in one, H.M.S. Boreas (Lieutenant-Commander M. W. Tompkinson, R.N.), there were casualties. The next-of-kin are being informed.

"It was during the air fighting, consequent upon the enemy attacks on the convoy and our destroyers, that a large proportion of the enemy aircraft already announced by the Air Ministry as destroyed yesterday were shot down."

One E-boat, however, achieved what the German radio described as "a particularly fine success"! On July 24 the French liner Meknes sailed from Southampton carrying some 1,300 French naval officers and seamen who had chosen repatriation rather than continuing the war in collaboration with Britain. She was clearly marked with French colours, which were brilliantly illuminated after dark. At 10.30 p.m. she encountered an E-boat which announced its presence by firing on her with machine-guns and cannon. The Meknes at once stopped and signalled her name and nationality by lamp. The only reply was a torpedo which sank the ship in less than ten minutes.

British warships were at once sent to the spot and were able to rescue 898 survivors—including two women and one child who had sailed in her. Nine officers and 374 men were missing, though some of them may have reached the coast of France; over one hundred of those brought back to England had to be sent at once to hospital for treatment. It is not altogether surprising that a number of those who returned changed their minds and decided after all to continue to fight the Germans.

At this time air attack had become a regular feature of the minesweepers' routine, as is illustrated by the following extract from the official report of the senior officer of a group of sweepers.

"6 a.m. Attacked while sweeping by bombers at about 5,000 feet. Engaged with A.A. guns. Salvo of four or five bombs dropped between ships of a pair. No hits. Continued sweep.

"11 a.m. Enemy aircraft circled ships at about 4,000 feet. Engaged with A.A. guns. No bombs dropped.

"1 p.m. Bombers circled ships at 5,000 feet. Engaged with A.A. guns. Five or six bombs fairly close. Carley raft damaged by splinters. Observed bomb attack on a convoy in vicinity. No hits. Continued sweep."

Towards the end of the month a typical bit of Nazi hypocrisy was revealed. German seaplanes, painted white and marked with the Red Cross, were several times observed to be flying over British convoys. One of them, which was forced down and captured, was found from its log book to have been used for military communication. In any case, even if there had been legitimate cause for providing such craft, they could obviously not be allowed to roam freely through areas in which war operations were in progress. The German Government was therefore, so informed. Nevertheless, on July 29, two of these pseudo-ambulance aircraft approached the British coast in company with strong enemy fighter patrols, and they were therefore shot down into the sea.

This action was interesting as showing that the *Luftwaffe* crews were becoming disturbed about the number being lost. And it is the more interesting, since it was the invariable habit of German aircraft to fire on British rescue boats—which have always rescued German as well as British airmen from the sea—so that it became necessary to arm them in self-defence.

British bombers were active during the month in attacks on naval targets, dividing their attention between what were beginning to be known as the " Invasion Ports "—Rotterdam to Brest, German sea traffic along the occupied coasts, and the German dockyards. On the night of July 1 the dockyard at Kiel was attacked, and particularly the Scharnhorst which was in the floating dock under repair for the damage inflicted on her when at sea in June. Several hits on her were claimed by the British pilots, and, of course, denied by the German announcements. Barges at Rotterdam were attacked the same night. Kiel was again attacked on July 5 by the Bomber Command. On July 7 the Fleet Air Arm made a daylight attack on the oil-fuel storage tanks at Bergen and set them on fire. Kiel and Wilhelmshaven were attacked also on July 7, 8, 10, 12, and 20.

British submarines continued to harass German communications also in Norwegian waters. On July 6 the Admiralty issued a description of two attacks by H.M.S. Snapper on convoys in that area, in one of which two ships were torpedoed and in the other three. On July 9 the Coastal Command bombed minesweepers and supply ships off the Danish coast, reporting having sunk one of each. On July 21 they reported a successful attack on a 14,000-ton ship there and on July 27 a similar success, again an enemy ship, off the Dutch coast.

On July 24 torpedo-bombers of the Fleet Air Arm sank the German escort sloop Konigen Luise—600 tons, two 4-inch guns—near the German coast.

More raiders were heard of during the month. On July 10 the British ship King John was sunk 240 miles east of the Virgin Islands. Her assailant was a ship of about 8 to 9,000 tons, named Narvik, armed with about four concealed 6-inch guns. Her crew, which was believed to number some three hundred, said that she could steam 19 knots. Three days later the British ship Davisian was also sunk and the crews of both ships were first taken on board the raider and later put adrift in three boats from their own ships, except the masters and chief engineers. Two of the boats reached the French island of St. Bartholomew in four days ; the third was picked up several days later by a Norwegian ship.

On July 29 the armed merchant cruiser H.M.S. Alcantara encountered a disguised raider near the island of Trinidad, 600 miles off the Brazilian coast. In the ensuing action, which lasted some time, both ships received damage ; but the Alcantara's speed was eventually reduced by damage in the engine room and the enemy was able to break off action by means of a smoke screen and get away, though her speed had also been reduced. The Alcantara, in which two were killed and seven wounded, arrived at Rio de Janeiro on August 1, and was allowed seventy-two hours there to make repairs to render her seaworthy. She left again within the time allowed. Whether the Alcantara's opponent was the Narvik or another raider and what became of her did not transpire.

Two new British mine barrages were announced during the month, one on July 10 from the Orkneys to Greenland by the Shetlands and Iceland, the other on July 23 closing the south end of the Irish Sea from north Cornwall to south-east Ireland.

A number of H.M. ships were lost during the month. Of three submarines, the Grampus, one of the large minelayers, was reported overdue on July 1; and the Shark and Salmon, small patrol submarines, on July 15 and 22, respectively. Some of the Shark's company were later reported to have been taken prisoner.

Of destroyers the only loss in the Mediterranean was that of the Escort, with two deaths, announced on July 14. She was hit by a torpedo in the western Mediterranean and sank while she was being towed in. In home waters the toll was heavier. The Whirlwind, destroyer converted to escort vessel, it was announced on July 9, was torpedoed and subsequently sank. On July 19 the loss of the Imogers, in collision in a dense fog, with eighteen ratings. The Brazen shot down three German aircraft during one of the attacks on convoys before she was herself hit by a bomb; there was no loss of life, but she sank while being towed in. The Wren and Delight were lost in the same way, fortunately with small loss of life, later in the month. These losses were announced on July 23, 30, and 31, respectively. In addition H.M. trawlers, Crestflower, Campina, Kingston Galena, Rodino, and Fleming were also lost during the month, and the patrol yacht Gulzar.

AUGUST.

There was little naval activity in the Mediterranean during the month, except by submarines and air forces. The Mediterranean is a difficult place for submarines in summer, for the weather is so fine and the water so clear that they are easily seen submerged from the air. A diving submarine can be kept in sight from the air and depth-charge craft can be directed on to her. Possibly that is the explanation of the loss of the Oswald on August 2 and the Odin and Orpheus later in the month. The Italians announced that the Oswald had been rammed by the destroyer Vivaldi and that fifty-two out of her complement of fifty-five were saved.

On August 1 a successful attack was made by the Fleet Air Arm on the aerodrome at Cagliari, Sardinia.

On August 17 the little port of Bardia, just west of the Egypt-Libya frontier, and Fort Capuzzo, some miles inland from Sollum, were bombarded heavily by the whole Mediterranean Fleet. Shortly afterwards the Fleet was attacked by Italian aircraft, without result, except that eleven of the attackers were shot down by Skuas without loss to themselves.

On August 20 bomb attacks were made on ships in the anchorages at Tobruk and Bomba, both with effect. On August 22 another air attack was made on a destroyer, two submarines, and a submarine depot-ship, with torpedoes according to the Italian accounts, in Bomba. All four ships were sunk—a most successful result.

On the night of August 23 both Bardia and Bomba were bombarded from the sea. H.M.S. Ladybird (gunboat), going right into Bardia Harbour—her light draught presumably taking her over the protective mines—bombarded her targets at point-blank range and withdrew without sustaining damage.

Milan was bombed by the Royal Air Force on August 24 and 26. Turin as well on the latter night.

The Italian war on Greece was foreshadowed by a particularly dastardly piece of treachery when the Greek cruiser Helle, at anchor off the island of Tenos on August 15, and taking part in the Festival of the Assumption, was torpedoed by an " unknown " submarine—well-known of course to have been Italian. Two Greek destroyers sent immediately to Tenos to rescue survivors were bombed by aircraft—recognised as Italian. Greece mobilised on August 25.

German activity was confined to attack on the ports and occasionally on convoys. Before dawn on August 8 a Channel convoy was attacked, by the light of flares dropped from aircraft, by E-boats, one of which was sunk and another damaged. Three small coasters in the convoy were torpedoed and sunk. Throughout the day attacks were made on the convoy by dive-bombers covered by fighters. Several ships in the convoy were damaged, but sixty of the attacking aircraft were shot down by British fighters and a number of others which were damaged probably never got home. Sixteen British fighters were lost, but only thirteen pilots.

On August 11 the attack was made on Portland, where two of H.M. ships were slightly damaged by splinters, and some naval buildings ashore, including of course the hospital, were damaged by bombs. Attacks were also made on shipping in the Dover Strait and on the East Coast—sixty-five enemy aircraft were destroyed. On August 12 it was the turn of Portsmouth—sixty-two enemy planes destroyed. On August 13, Southampton—seventy-eight German planes destroyed. On August 14 Dover and Southampton, while a lightship in the Channel was attacked with machine-guns and then sunk by bombs. The next day no naval objective was attacked, but the day was notable since 180 enemy aircraft were destroyed.

On August 20 a number of ships were attacked by bombers in the Irish Sea, using bombs, torpedoes, and machine-guns but without success. Portsmouth was attacked on August 24, and that day notable A.A. execution was done by H.M. trawler Arctic Trapper when she was approached by a formation of enemy bombers escorted by fighters. The latter attacked the trawler with machine-guns, but regardless of that she opened fire on the bombers. Her first shell exploded between two of them, damaging both. The second hit a third bomber which crashed in the sea, and the third burst close to a fourth which also crashed.

A similar notable feat had been performed earlier in the month by a merchant ship. S.S. Highlander, 1,216 tons, was attacked on August 1 with torpedoes, bombs, and machine-guns in turn by two Heinkel seaplanes. The torpedoes and bombs all fortunately missed ;

but the Highlander opened fire on her attackers, which were flying low, with her anti-submarine gun and shot them both down. The first fell in flames in the sea and the remains of the second were brought triumphantly into harbour on the Highlander's poop, where it had crashed after a forty-minute battle.

On August 11 too the little ships took as heavy a toll. H.M. trawler Edwardian shot down one enemy dive-bomber into the sea and damaged another. H.M.S. Windsor also shot down one, and three more were destroyed by these two ships, assisted also by H.M. trawler Peter Carey. It could not be stated with certainty which ship's fire brought down which bomber, so each ship was credited with one.

Portsmouth, Dover, and Folkestone were the targets on August 26. On August 31 it could be calculated that the number of German aircraft destroyed over Britain and in British waters during the month was over one thousand.

The attack on the convoy on August 8 was not the only occasion in which E-boats were encountered. On August 13 a British motor torpedo boat had a spirited action with one just before dawn, but it was too dark to observe the result. The next morning the destroyers Malcolm and Verity engaged six German armed trawlers and three E-boats, sinking one of each without damage or casualties to themselves.

As soon as the Germans obtained possession of the French coast of the Dover Straits they were observed to be constructing gun emplacements there, and from the experience of the last war it was expected that they would very soon mount long-range guns there. The expectation was fulfilled. On August 13 explosions occurred on the south-east coast, apparently from bombs, though no aircraft were present, and fragments picked up were evidently bits of heavy shell. On August 22 fire was opened from four heavy guns near Cap Gris Nez on a convoy passing through the Strait close to the English shore. The convoy was not damaged, for although salvoes fell amongst the ships, the escorting destroyers promptly laid a smoke screen to seaward of it, while Spitfires chased away the enemy spotting aircraft. At the same time British long-range guns, the existence of which had been kept a close secret, opened fire on the German gun positions; they had been mounted, and were thereafter manned, by the Royal Marines. From that time onwards such duels and such attacks on convoys passing were of frequent occurrence.

British air attacks on German naval bases were frequent. The Royal Air Force attacked Kiel on August 3, 7, 20, and 27, and Wilhelmshaven on August 10 and 27. On August 20 two German destroyers were attacked by aircraft of the Coastal Command, which reported having damaged one of them.

The Fleet Air Arm attended chiefly to Norway. On August 1 a wireless station near Bergen, known to be in use by the Germans, was destroyed and a 4,000-ton supply ship was sunk. On August 8 the oil-fuel installation at Dolvik, five miles south of Bergen, was attacked and two of the tanks set on fire. On August 19 two 3,000-ton transports were bombed and sunk. On August 28 the two remaining tanks at Dolvik were fired; a German patrol boat was sunk and a 2,000-ton supply ship was hit. Since nearly all communications in Norway are by water and are dependent upon oil fuel, these operations were obviously highly effective.

Commerce raiders again turned up in the Antipodes. On August 20 the British steamer Turakina reported that she was being shelled in the Tasman Sea.

Towards the end of the month the Germans notified the Swiss Government, for transmission to the British Government, that they intended to employ sixty-four vessels, marked with the Red Cross, to rescue airmen shot down into the sea. Apart from the absurdity of suggesting that a whole crowd of supposed hospital craft could be allowed to infest British waters in which operations were in progress, this proposal, coming from a people who had made a constant practice themselves of sinking hospital ships and murdering doctors and nurses, was nothing less than barefaced effrontery. Germany was at once notified that no such proceeding would be permitted.

During the month there was much discussion in the United States regarding the proposal for the establishment, in British possessions on the western side of the Atlantic, of United States naval and air bases. No official news about it was forthcoming, however, until on August 25 the Governor of Bermuda informed the legislature of the colony that agreement had been reached for the lease to the U.S.A. of a site in Great Sound for a seaplane base. There was, not unnaturally, some apprehension in the colony lest any change in its sovereignty should be involved in the transaction; but that was allayed by an assurance from Lord Lloyd, the British Colonial Secretary, communicated to the Bermuda Legislature at the same time. It was generally understood that this transaction was only one half of a deal which would include the transfer of a number of United States destroyers to the Royal Navy. Of that more later.

Besides the losses of submarines in the Mediterranean, already mentioned, on August 28 the loss was announced of the Spearfish, well-known already for her escape from German waters after being damaged by German depth-charges in the first month of the war, and for having torpedoed a German pocket battleship off the Skaw on April 11. The loss of the destroyer Hostile—a survivor of the first action at Narvik—by a mine, was announced on August 27. The armed merchant cruiser Transylvania was torpedoed by a U-boat and subsequently sank before she could be got into harbour.

Seven trawlers were also lost in the course of the month, the Cape Finisterre, Marsona, River Clyde, Tamarisk, Pyrope, Elizabeth Angela, and Resparko.

SEPTEMBER.

On September 3 the completion of the Anglo-American deal was announced. The United States were to be granted on lease for ninety-nine years sites for naval and air bases in Newfoundland, Bermuda, the Bahamas, Jamaica, Antigua, St. Lucia, Trinidad, and British Guiana. In return they would transfer to the British Navy fifty "over-age" destroyers of the "1,200-ton" class. The deal gave general satisfaction on both sides of the Atlantic. To us the reinforcement in anti-submarine craft was highly welcome at a time when our forces in that category were severely depleted by the losses and damage sustained in the coastal operations of the battles of the Low Countries and France, by the defection of the French Navy, and by the necessity for reconstituting the Mediterranean Fleet against Italy. Moreover, for America to acquire a direct interest in the defence of British possessions in the western Atlantic must to some extent lessen the probability of attack on them, and make it possible for us to devote to other purposes some of the resources earmarked for their defence. In the United States the bases now acquired were regarded as invaluable outposts, as "a line of aircraft carriers," which would greatly facilitate American control of the western Atlantic. Moreover, an American foothold in the West Indies was regarded as an insurance against the bogy of their transfer to Germany in the event of a British defeat.

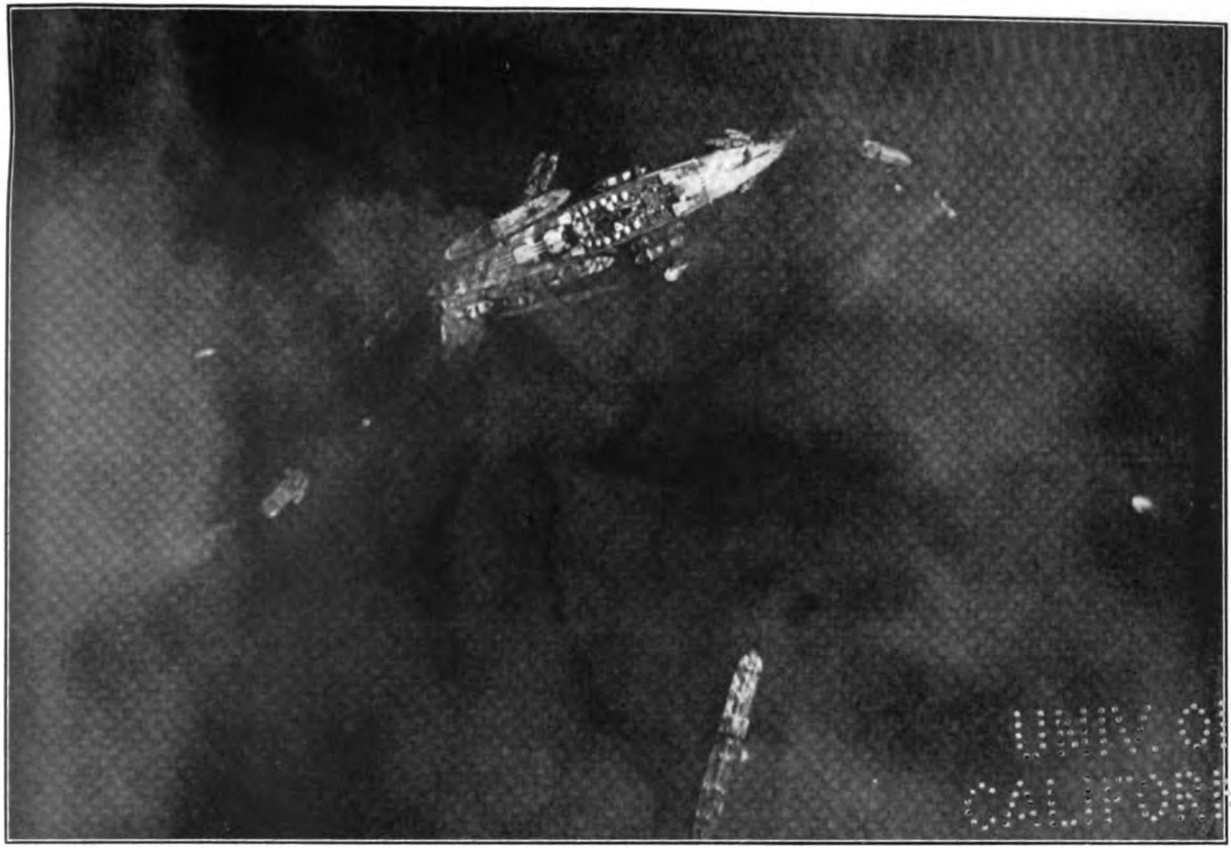
The first group of American destroyers left their base on September 5 and reached Halifax, Nova Scotia, the next day. They were formally handed over on September 9, and the British officers and men who took them over greatly appreciated the great care that had been taken to ensure that they should be completely equipped in every detail—to sheets in the bunks and forks in the messes. The first batch to come to England arrived on September 28.

They were renamed on transfer from one Navy to the other, being given names, for the most part, of towns which are common to Britain and America. The first one to be handed over was renamed Churchill. The second group to be handed over arrived at Halifax on September 18, and the remainder at short intervals thereafter. The first party of United States officers sent to settle details about the bases arrived in Newfoundland on September 16.

In the first few days of the month the British Fleet was active in the Mediterranean, again taking a large troop convoy through to reinforce General Wavell's "Army of the Nile." Aircraft of the Fleet Air Arm from the British force in the Western Mediterranean shot down more than one Italian aircraft which attempted to reconnoitre the Fleet. They then successfully attacked the aerodrome at Elma in Sardinia on September 1, and next morning that of Cagiliari.

Enemy forces had been at sea in the Central Mediterranean on August 31, for H.M.S. Parthian (submarine), had reported attacking a force of cruisers and destroyers and making two hits with torpedoes; but nothing was seen of them by our other ships. Air reconnaissance reported the Italian main Fleet—battleships, cruisers, and destroyers —at sea in a position 150 miles from the British squadron in the Eastern Basin, the Mediterranean Fleet under Sir Andrew Cunningham. But evidently Italian air reconnaissance also reported the presence of the British Fleet, for the Italians at once headed for Taranto at high speed and it was not possible to catch them.

On September 2 the Mediterranean Fleet was south-west of Malta, presumably covering the convoy, when it was attacked by dive-bombers—Junkers 87 aircraft, but probably manned by



Italian battleship Littorio grounded at Taranto after Fleet Air Arm attack.

(British Official photograph.)

UNIV. OF
CALIFORNIA

Italians. The Italians claimed several hits but actually none were made; though five of the attackers were shot down by the Fleet Air Arm fighters and four more chased nearly to Sicily.

Having seen the convoy clear of the Sicilian Channel, part of the Mediterranean Fleet went off to attack the Italian bases in the Dodecanese. Bomb attacks were made on the air stations at Maritza and Calato in Rhodes, while eight enemy aircraft were shot down. Meanwhile the Sydney and Orion bombarded the air station at Makri Yalo and the harbour of Pegadia in the Island of Scarpanto. Five E-boats emerged from the harbour and three of them tried to attack. They were engaged by the destroyers, two were sunk and one damaged and the other two retired without attempting to attack. Air attacks were made on the British force as it withdrew, but no hits. Two attacking aircraft were shot down.

British submarines continued to harass Italian communications with Libya. After the Fleet had returned to Alexandria the Osiris sank an enemy supply ship on the Italy–Tripoli route, and the Rorqual sank two more which were being escorted by a destroyer.

On September 13 the Italians started their forward move into Egypt, occupying Sollum that day and reaching Sidi Barrani three days later. There they halted and began accumulating material for the further advance. During this advance they were continually harassed by gunfire from the sea. On September 15 the Italians claimed to have hit a British cruiser with a torpedo dropped from an aircraft and to have bombed an aircraft-carrier in the same squadron. On September 16 the Fleet Air Arm attacked shipping in Benghazi and reported having set one merchant ship on fire, sunk one destroyer, and damaged several other ships. The loss of "a torpedo boat and a pontoon" in this attack was admitted two days later by the Italians, as well as damage to a ship at Derna. The R.A.F. attacked Rhodes on September 19 and Benghazi the next night, again hitting a ship in the harbour.

On September 22 and 25 the Italian positions at Sidi Barrani were again bombarded from the sea. Shipping in Massa Tobruk was bombed from the air on September 23 and 25. The Italian Navy suffered another loss when on September 22 the Osiris sank with a torpedo an Italian destroyer of the "Curtatone" class in the Adriatic, north of the Otranto Strait. The loss was admitted in an Italian announcement of September 26, but, apparently, unwilling to admit that enemies could penetrate to the Adriatic, it was there stated as having occurred in "the Ionian Sea."

Italian submarines, if they had little success in the role for which they were built—attack on enemy warships—seem to have thought to make up the balance elsewhere. A Spanish trawler, Almirante Jose de Carranza, was torpedoed by an Italian submarine on September 19 and the Spanish steamer Cabo Tortosa about the same time; on September 28 the s.s. Monte Moncayo was torpedoed and four of her company killed.

There was a further unfortunate and regrettable clash with the French during the month. Various parts of the French Empire, amongst them French Oceania in the Pacific and French Equatorial

Africa had declared for the Free French, led by General de Gaulle. The latter had many sympathisers in French West Africa of which the capital is Dakar, and it seems probable that communications between them must have come to the knowledge of the Vichy Government who, recognising the danger that that colony might also secede from their authority, decided, obviously with German approval, to make a special effort to prevent it. Anticipating an attempt by de Gaulle to gain the adherence of Dakar, three cruisers, the Georges Leygues, Gloire, and Montcalm, and three destroyers, le Malin, le Fantasque, and l'Audacieux, left Toulon on September 11—for which they must have had German permission under the terms of the armistice—passed the Straits of Gibraltar the next day. These movements were announced in the Press as they were made, and there was some speculation, when it was known that they were going westward, whether the Navy would allow them to pass the Straits. However, their arrival at Dakar on September 14 was announced from Vichy the following day. It was generally understood that they were packed with officers of pronounced anti-British views; at the same time the former governor was removed and superseded by a M. Boisson, a fanatical pro-German of the Laval type. What occurred was described in the following statements issued on September 25. From General de Gaulle's headquarters in London:

"Called to Dakar by numerous Frenchmen anxious to continue to fight at his side, General de Gaulle appeared with French soldiers and sailors before the fortress.

"The naval authorities at Dakar ordered fire to be opened on General de Gaulle's emissaries, who had come without weapons in a motor-launch, flying the Tricolour and the white flag of truce. These emissaries were Commander d'Argenlieu, Commander Gotsch, Commander Becourt Foch, and Commander Perrin.

"Commander d'Argenlieu and Commander Perrin were seriously wounded.

"Later, General de Gaulle having attempted to land his troops peacefully, fire was opened by the Dakar authorities on the French sloops Savorgnan de Brazza, Commandant Duboc, and Commandant Dom. Several men were killed and many were wounded.

"General de Gaulle then withdrew his troops and ships, not wishing to be a party to a fight between Frenchmen.

"The operations decided upon to prevent French West Africa from falling under German control are continuing, and it may be confidently expected that, thanks to the determination of General de Gaulle and to the patriotism of the military and civilian population, they will lead finally to the rallying of French West Africa to the flag of Free France."

From the Ministry of Information:

"The circumstances which led to the expedition to Dakar are briefly as follows:

"General de Gaulle had good reason to believe from the information which reached him that a large proportion of the French population of Senegal supported the Free French movement and would welcome his arrival, and that a similar situation might be established there to that which exists in French Equatorial Africa.

"He therefore proposed to H.M. Government that he should proceed there with some of the troops at his disposal with the goodwill and support of Great Britain. His Majesty's Government were all the more ready to afford General de Gaulle this support as information had reached them that German influence was spreading to Dakar.

"Meanwhile, while the expedition was on passage, the Vichy Government dispatched three cruisers from Toulon, which passed through the Straits of Gibraltar and eventually arrived at Dakar.

"It is no part of the policy of H.M. Government to interfere with the movements of the French men-of-war so long as they are not destined for any ports under German control. For this reason no hindrance was put in the way of the vessels in question passing through the Straits of Gibraltar.

"When, having done so, they pursued a southerly course, they were permitted to proceed. They therefore reached Dakar without interference.

"When later they put to sea again steaming south, it was thought that they might be intending to interfere with the situation existing in French Equatorial Africa, which had already declared for General de Gaulle. Ships of the Royal Navy intercepted their passage and insisted upon their reversing their course which they eventually did, two of them returning to Dakar and the third, which was suffering from engine trouble, being escorted by one of His Majesty's ships towards Casablanca.

"On the morning of September 23 emissaries of General de Gaulle, flying the Tricolour and the white flag, in order to show their French nationality and their peaceful intentions, attempted to land at Dakar and were met with a hostile reception. They were fired upon and seriously wounded.

"The batteries of the port opened fire on one of General de Gaulle's warships, and subsequently on H.M. ships which were standing by in order to render General de Gaulle support and assistance, if needed.

"Before returning the French fire the Admiral commanding made the following signal in plain language: 'Will be compelled to return fire unless fire ceases.'

"As the fire of the shore batteries did not cease fire was returned, and both H.M. ships and the shore batteries scored hits and incurred casualties.

"Fire from the French battleship Richelieu was joined to that of the shore batteries, and consequently her fire had to be returned. The British naval commander warned the French authorities that submarines would be engaged if they left harbour.

"In spite of this warning three submarines made attacks on our ships, and active measures had to be taken against them, with the result that two were sunk; but the entire crew of one were fortunately saved and will be repatriated at the first opportunity.

"The forces of General de Gaulle attempted to make a landing which was not successful, and when it became plain that only a major operation of war could secure the fall of Dakar it was decided to discontinue hostilities, as it had never been the intention of H.M. Government to enter into serious warlike operations against those Frenchmen who felt it their duty to obey the command of the Vichy Government.

"General de Gaulle himself was most anxious that he should not be the cause of bloodshed to his fellow countrymen. The forces concerned are therefore now being withdrawn from the region of Dakar."

The submarine of which the crew was rescued was the Persée.

From Vichy it was alleged that the battleships Barham and Resolution were hit by gunfire from the shore, the cruiser Kent by torpedo, and all three ships by bombs, and a series of inaccurate and tendentious accounts of what had happened was issued. In reprisal for what they described as a British attack on Dakar, Vichy ordered two air attacks on Gibraltar by French air squadrons from Morocco, thus incidentally proving the falsity of previous assertions that the French air forces there had been put out of action so that they could not be available to Germany. One of these attacks was announced by the German radio before it was actually made, so that there can be no possible doubt of German privity.

The Prime Minister, describing the episode later in Parliament, allowed it to be understood that the chief blame for the unfortunate outcome lay with "a series of accidents and some errors" by which the War Cabinet was not informed soon enough of the passage of the French cruisers through the Straits of Gibraltar. He stated that disciplinary action was being taken, but the identity of those who were treated as culprits was not made public, nor was any court-martial held. The United States Press, though friendly, described the whole adventure as "a major blunder," and there the whole miserable business may be left.

The month was marked by a particular offensive by the Germans against ships carrying children to North America—Canada and the

United States. On September 1 320 children, between five and fourteen, who had left for Canada a day or two before, and whose ship, the Dutch s.s. Volendam, had been torpedoed, landed in England. Fortunately the arrangements for their safety proved adequate and all of them were saved, though the purser of the ship was killed by the explosion. Another party were less fortunate. The s.s. City of Benares was torpedoed 600 miles from land. Out of a total company of 406, 248 were lost, including seventy-nine out of the ninety children on board. The last of the survivors to be picked up had been for eight days in an open boat before they were located by a British flying-boat and rescued.

The Navy and the Royal Air Force continued their offensive against German attempted movements by sea. On September 2, the Sturgeon, on patrol off the Skaw, torpedoed just after dark a German transport of about 10,000 tons, which was escorted by a number of destroyers. The Sturgeon was fortunate in that she sighted her target just before it passed out of range, silhouetted against the western sky; it could not have been seen on any other bearing. Only one hundred of the large number—4,000 according to a Swedish report—of German troops on board were saved. On September 8 Skuas of the Fleet Air Arm sank two enemy supply ships near Bergen. On September 9 reconnoitring Dolvik to verify that the oil installation had been completely put out of action, they attacked a 2,000-ton ship off Haugesund and sank a 2,500-ton tanker south of Bergen.

A German convoy was attacked going from Calais to Boulogne on September 11 by aircraft of the Coastal and Bomber Commands. The enemy were endeavouring to cover its passage by bombardment of Dover by the Boulogne guns and a simultaneous attack by dive-bombers. The next day the Coastal Command and Fleet Air Arm attacked similar convoys off Dunkirk, Cap Gris Nez, and Havre, destroying several ships, and attacked escorting E-boats with machine-guns. Throughout the month too, shipping and barges in the Dutch, Belgian, and French Channel ports were bombed daily and nightly.

It was on September 15 that the Germans made their biggest air attack on this country, when they lost 185 aircraft shot down. It was generally believed afterwards that the next night, September 16, troops were actually being embarked for an attempt at invasion, but that they suffered so severely from the night raids on the barge ports, from Flushing to Havre, that the crossing was not attempted. On September 17 a whole gale blew up in the Channel, and if there really were any German soldiers afloat in barges outside the shelter of the ports it must again have been a case of *afflavit deus dissipati sunt*, as in 1588. There is no definite evidence on this point, but the Royal Air Force reported attacking a "convoy of barges off the Dutch coast" on that day. The air attacks on the ports continued without intermission throughout the month, and some enemy minesweepers in the Channel were bombed on September 24.

Submarines too took their part in the same duty. On September 27 the Admiralty announced that "H.49," a veteran of the last war, had put two torpedoes into a German convoy of eight ships and that the Tuna had sunk a large ship screened by two destroyers—described as a supply ship, but possibly, in view of the strong escort, a transport.

There was no fresh news of raiders during the month, but some of the victims of one of them were rescued. H.M. submarine Truant early in the month encountered a ship off Cape Finisterre which proved to be the Norwegian s.s. Tropic Sea, under the charge of a German prize crew from a raider. She carried a cargo of wheat and had on board the master and crew, twenty-three of them, of the British s.s. Haxby, captured by the raider. On the Truant's approach the Germans scuttled the ship, having explosive charges placed all ready for the heroic (!) act. The Truant took on board the Haxby's company, but could not accommodate the prize crew who, as the sea was flat calm, were left in the boats. One boatload were brought to England by a flying-boat sent to their rescue; the remainder presumably reached Spain.

Of H.M. ships of which the loss was reported during the month, the armed merchant cruiser Dunvegan Castle was torpedoed and subsequently sank but the casualties were few. Early in the month the destroyers Ivanhoe and Esk were lost either by torpedoes or mines. The Germans claimed five, these two and the Express amongst them; actually no other was lost, and though the Express was damaged she reached harbour. The sloops Penzance and Dundee were torpedoed and sank. The loss of the submarines Phoenix, Narwhal, and Thames was notified during the month with that of the trawlers Royalo and Loch Inver.

The centenary of the birth of Admiral A. T. Mahan, U.S. Navy, was commemorated by a special meeting at the Royal United Service Institution, at which speeches were made by Admiral of the Fleet, Lord Chatfield, Rear-Admiral Ghormley, U.S.N., and Professor Walker, Professor of Imperial and Naval History at Cambridge. If the learned author of Chapter X is correct, it would appear that the occasion was more effectively recognised in London than in New York.

OCTOBER.

From September 29 to October 2 the Mediterranean Fleet swept the eastern and central Mediterranean—taking the opportunity to land certain reinforcements at Malta. A strong enemy force was located at sea by air scouts, but when found, it was already one hundred miles away and steaming for its base at a speed which the British ships could not match. Three air attacks were made on the British Fleet, the first two by high bombing, the third by torpedo-aircraft concentrated on an aircraft-carrier. Rome radio reported a British battleship torpedoed and severely damaged, a cruiser sunk, and so on. Actually there were no hits and no casualties, but one attacking aircraft was shot down by A.A. fire, and in the course of the cruise three shadowing aircraft were shot down by Fleet fighters. On the night of October 2 the naval and air base at Stampalia was bombarded from the sea.

Early in October it was calculated in Alexandria that twenty-two Italian submarines had been destroyed since Italy entered the war.

On October 10 shipping in Benghazi and Tobruk was attacked by the R.A.F. On October 12 there was a brush between light forces in the Sicilian Channel. H.M.S. Ajax at 0230 encountered and engaged three small destroyers of the " Airone " class, sinking two of them. She then encountered an enemy heavy cruiser with four destroyers in company and again attacked, disabling one destroyer while the others made off. The York came up to the support of the Ajax, but no further encounter occurred until after daylight, when air scouting located the damaged destroyer—identified as the Artiglieri—in tow of a consort.

On the approach of the Ajax the latter very naturally slipped the tow and retired, chased unsuccessfully by the Ajax. The York gave the crew of the Artiglieri half an hour to abandon ship—dropping Carley rafts to supplement the Italians boats which were insufficient for her company—and then sank her by gunfire ; after which, since to stop and pick up survivors would be to invite Italian air and submarine attack, she broadcast a wireless message giving their position. Later, a British flying-boat guided an Italian hospital ship to the spot and the survivors were picked up. The Italian radio admitted the loss of one large and two small destroyers, but claimed to have sunk a cruiser of the " Neptune " class in the engagement and damaged other ships.

Later in the day the Mediterranean Fleet was attacked from the air for four hours. No ship was hit or damaged and four enemy aircraft were shot down. The next day, however, they at last achieved a success, in hitting H.M.S. Liverpool with a torpedo. Her casualties were not heavy and she reached Alexandria safely.

On October 12 the Italian positions at Sidi Barrani were bombarded from the sea and the next night the Fleet Air Arm raided the port of Lago in the Dodecanese. British submarines were also active in harrying Italian sea communications at this time. One of them bombarded Savona, sank a 5,000-ton merchant ship which was being convoyed by E-boats and sank a 3,000-ton ship in Vado Road. Another submarine at the same time sank a 3,000-ton ship off Naples and a third sank an 800-ton supply ship off Benghazi. Ten days later the Regent sank another supply ship of 6,000 tons.

Benghazi was again bombed on October 19 as was the Rhodes aerodrome. The next day the centre of interest shifted to the Red Sea. On the night of October 20–21 the Italian destroyer Francesco Nullo attacked a British convoy in the southern Red Sea with guns and torpedoes. She was at once engaged by the Kimberley, of the convoy escort, which lost touch at first, but regained it at daylight. An engagement lasting forty minutes followed at the end of which the Francesco Nullo, being damaged, was run ashore. There she was destroyed by a torpedo from the Kimberley which then came under fire of three guns in a shore battery. She silenced two of them, but was hit and her speed reduced until a damaged steam pipe could be repaired.

An account of this action by an Arab who was employed on board one of the Italian ships was later given at Aden. He stated that there were five ships in the attacking flotilla, but that when the Nullo was hit and slowed down, the senior officer immediately ordered the remainder to return to Massowa at full speed, breaking off action under a smoke screen. They entered harbour the next morning beflagged, with band playing, to celebrate having sunk an entire British convoy ! It was only later that the inhabitants realised that the ships that returned were one less than those that had set out.

That day aircraft of the R.A.F. reported engaging another enemy destroyer, and claimed a direct hit on her stern.

On October 29, having thought to bully Greece into submission by threats, Italy found herself at war with Greece. The immediate result was to place at British disposal both naval and air bases of the greatest value.

On October 30 a very gallant attack was made at Gibraltar by some Italian officers with what was described as " a special device." One torpedo exploded harmlessly at the harbour entrance and another ran ashore at La Linea, where it was removed by the Spanish authorities. The nature of the " special device " was not disclosed.

On October 4 a convoy of fifteen, most of which were colliers bringing some 40,000 tons of coal from Cardiff, arrived in the River Tagus, thus providing the Portuguese with convincing proof of the hollowness of the German boast that Britain was blockaded. That same day a statement was issued from the Admiralty stating that during the preceding five weeks seven German U-boats and two Italian had been sunk by naval or air forces, and others damaged.

In home waters, British air attacks on the invasion ports continued throughout the month without intermission. On October 3 off Dunkirk a German convoy escorted by men-of-war was bombed and the barges in harbours from Flushing to Havre were bombed practically daily. On October 9 a heavy air attack was made by the Fleet Air Arm and Coastal Command in collaboration on the naval base at Brest and hits were reported on German destroyers in the harbour there. This attack was repeated on the following night although weather was adverse and anti-aircraft fire was intense. Several hits on the destroyers were again reported. On October 12 the Coastal Command attacked a German convoy off the Norwegian coast and reported damage to one ship. Kiel and the German men-of-war completing or refitting in the naval dockyard there were attacked on October 15, 16, 17, 25, and 28. On October 19 and 20 the Fleet Air Arm made bomb and torpedo attacks on the German seaplane base at Tromso in the extreme north of Norway. On October 23 the Coastal Command attacked an enemy convoy off the Frisian Islands and sank two ships in it with torpedoes. On October 26 a German torpedo boat was sunk by aircraft of the Fleet Air Arm and on October 28 the Coastal Command sank a German supply ship with a torpedo off the Norwegian coast.

On October 9 the Navy took a hand in the attack on invasion ports when Cherbourg was bombarded by ships during the night. Subsequent air reconnaissance showed the bombardment had been highly successful. A number of torpedo boats in the anchorage had been damaged, a vessel alongside the Gare Maritime was still burning fiercely the next day, and the dry docks and repair slips had been severely damaged. A week later Dunkirk was similarly bombarded. The nature and position of targets there were of course fully known from British experience when in occupation of the port.

The same communiqué which announced the bombardment of Dunkirk on October 16 announced that a German convoy of three supply ships, one about 7,000 tons, the other two smaller, and two vessels accompanying them had been destroyed. One of them would seem to have been loaded with ammunition since it exploded before sinking. The locality in which this successful action took place and the British force engaged were not disclosed.

On October 18 four German destroyers steaming west were sighted off Brest by the aircraft of the Coastal Command. Visibility was poor and varying, but British light forces at once went to endeavour to bring them to action. They were unable to locate them until the afternoon when the weather cleared, and one British cruiser then engaged them at extreme range about one hundred miles south-west of Land's End. The enemy at once made for Brest at high speed but though pursued by our forces they succeeded in getting back into harbour. Air attacks were made on both sides. No British ship was hit; one bomb was seen to fall very close to an enemy destroyer, but failing light prevented any more accurate observation. Other British ships the same afternoon sighted three enemy trawlers off the coast of France and sank one before the remainder were able, in the fashion of the Napoleonic wars, to take refuge under the guns of shore batteries.

On October 20 a German official statement was issued announcing that U-boats had made a most successful attack on a British convoy the night before, sinking seventeen ships of a total tonnage of 110,000. Captain Prien—who had torpedoed the Royal Oak in Scapa Flow a year earlier—and Lieutenant Endrass were said to have been in command of the U-boats chiefly responsible for this success; and the former received the Oak Leaf and Knight's Cross—Germany's highest decoration—for his exploit. The return of ships lost in that week, when it was issued ten days later, proved to be the heaviest of the war, though less than a half of the German claims. Still, it was evident that the U-boats had had a marked success and the mention of their working in company at night showed that they had used a novel method of attack.

On October 26 German aircraft had a similar success, when they bombed and set on fire the C.P.R. liner Empress of Britain. The fire spread and it became necessary to abandon ship. Attempts were made to tow her in, but on the way she was torpedoed by a U-boat and sank; 598 out of the 643 crew and passengers who were on board were saved.

The German Command, describing the ship as a "transport"—which she was not—stated that the U-boat commanded by Lieutenant Jaenisch had sunk her. That officer was shortly afterwards landed in England as a prisoner of war.

The loss was reported on October 25 of the Venetia sunk by an enemy mine. On October 28 the Canadian Government announced the loss a week earlier of H.M.C.S. Margaree, formerly H.M.S. Diana, which had been transferred to the Royal Canadian Navy to replace the destroyer Fraser lost at Bordeaux in June. The Margaree was sunk in collision with a merchant ship in the convoy she was protecting. Both ships were darkened and carried no lights and the weather was bad ; 140 out of her complement of 171 officers and men were lost. The losses of small patrol craft during the month were heavy, but few details of how they occurred were available. Twelve trawlers, one drifter, one yacht, one tug, two ex-French patrol vessels, and two minesweepers make up the tale.

On October 30 the Germans announced that a " German warship operating in oversea waters " had sunk three British merchant ships ; to which raider this announcement applied was not apparent at the time.

NOVEMBER.

The first result of Italy's would-be *coup* against Greece was the arrival of British liaison officers in Athens and in a number of Greek ports. On November 3 the First Lord of the Admiralty announced that British troops had already landed in Greek territory—in Crete, to be specific, where they relieved Greek troops needed at the front as guards to the harbour of Suda Bay. From that time onwards it is to be presumed that Admiral Cunningham had the use of Suda Bay whenever he needed it, and its value for operations in the Central Mediterranean is obvious from a mere glance at the chart.

Italian submarines had a bad time at this period. On November 2 the loss of two was admitted, and their destruction by naval light forces, in collaboration with the R.A.F., was announced in a British statement two days later. On November 3 a damaged submarine took refuge in the neutral port of Tangier—annexed the next day by Spain, the international regime being forcibly ousted—closely followed by another the next day. There they remained until December 13.

November 11—the anniversary of the German Armistice of 1918—was a notable day in the Anglo-Italian struggle. Mussolini marked it by sending Italian air squadrons to take part in the German attack on Britain—from which thirteen aircraft were promptly shot down. Admiral Cunningham marked it by a raid by light craft on the Italian communications with Albania, and by a remarkably daring and highly successful attack on the main Italian battle fleet in Taranto by torpedo aircraft of the Fleet Air Arm.

The cruisers and destroyers sweeping the Southern Adriatic that night encountered a convoy of four ships, escorted by two destroyers, on passage from Valona to Italy. The destroyers at once put up a smoke screen and themselves escaped behind it, though not before one had been damaged. One ship of the convoy was sunk, two more set on fire, and only the fourth may have escaped. The British force, having to withdraw past the main Italian base at Taranto, might have expected attack, but that Fleet was far too much occupied with its own affairs to deal with them.

Just after dark on that evening eleven torpedo aircraft and ten bombers had taken off from the Illustrious and Eagle—this was the first time it was made public that the Illustrious had been completed and commissioned—and made for Taranto. The bombers arrived first and dropped flares, by the light of which the torpedo aircraft made their attack on the battleships lying in the outer harbour, gliding down from 5,000 feet to within dropping distance of the water, and making their get-away through the balloon barrage. Two of them did not return, but as the Italians claimed to have shot down six and taken their crews prisoner, it was hoped that the crews of those two were safe. The bombers then flew over again and attacked the cruisers in the inner harbour.

The results of the attack were ascertained from photographs taken the next day and on November 14 by the R.A.F. The Littorio was beached with her forecastle under water; one of the "Cavour" class was also lying on the bottom, abandoned, with the whole of her after part, including the after turret, under water; another of the "Cavour" class was also beached and obviously damaged. In the inner harbour two cruisers were listed over and obviously leaking oil fuel and two auxiliaries were lying with their sterns under water. At a stroke the Italian battle fleet was reduced from superiority—on paper—to Admiral Cunningham's battle fleet to even numerical inferiority. On the other hand, there was not much reduction in the cruiser strength, so that none of the Mediterranean Fleet's vigilance could be relaxed.

While this attack was being made in Apulia, the Ark Royal's aircraft were attacking Cagiliari in Sicily. The Ark Royal was afterwards repeatedly bombed by Italian aircraft, but she was not hit and sustained no casualties. On the other hand her fighters shot down at least two Italian aircraft; and the Mediterranean Fleet, between November 8 and 13, destroyed seven enemy aircraft and damaged others.

On November 27 an inspiring encounter occurred between Sir James Somerville's squadron and a much stronger force of Italian ships. The precise composition of the British squadron has not been published, but Sir James Somerville had his flag in the Renown and the mention in the Admiralty's published description of the action of "slower units" appears to indicate at least one battleship. The Ark Royal was also of the squadron, several cruisers, of which the Berwick was the only one named, and destroyers.

At 10 a.m. when the British squadron was west of Sardinia, air scouts reported two Italian battleships and a large number of cruisers and destroyers seventy miles to the north-eastward. These, according to later information from Italy, were the Vittorio Veneto, the Giulio Cesare, the cruisers Fiume, Pola, Gorizia, and three others and several flotillas of destroyers. At noon the opposing forces sighted one another and twenty minutes later the advanced light forces opened fire. The enemy, although in superior force, turned and retreated at a speed which out-distanced even the Renown and the cruisers. Salvoes were exchanged at extreme range, and the Berwick was hit, suffering slight damage and fifteen casualties, but owing to enemy smoke screens it was not possible to observe what damage he had sustained. From the air later, however, it was observed that one heavy cruiser was on fire aft and the destroyer Lancieri damaged and stopped—she was later towed to her base. The Fleet Air Arm in subsequent torpedo attacks claimed torpedo hits on the Vittorio Veneto and one heavy cruiser and damage by bombs to a light cruiser.

Twice in the afternoon enemy bomb attacks were made on the British force. In the second, at one moment the Ark Royal was completely hidden from her consorts by the splashes of bombs, but emerged from them unhurt with every gun firing. No hits or damage resulted, but two enemy planes were shot down for the loss of one British fighter.

Once again Sir James Somerville had shown himself a skilled and intrepid leader, and the sight of a powerful enemy squadron retiring precipitately from his one fast ship, which had left her slower consorts far behind, was an inspiration to everyone in his command. Again it had been shown beyond doubt which fleet dominated the Mediterranean.

While this action was in progress in the Central Mediterranean the Fleet Air Arm of the Mediterranean was busy elsewhere. Successful attacks were made on the naval base at Port Laki in Leros (Dodecanese) and on shipping at Tripoli.

On November 5 the Mackay Radio of New York—notorious for always picking up distress signals from the Atlantic, real or false—reported messages from the Rangitiki and Cornish City saying they were being shelled by a pocket battleship 1,000 miles east of Newfoundland, i.e. in mid-Atlantic. The full story of what had happened could not be told until a week later.

The ships were in an east-bound convoy of thirty-eight ships—one of which straggled and was not present during the attack—escorted by the armed merchant cruiser Jervis Bay, Captain Fogarty Fegen. The commodore of the convoy, Rear-Admiral H. B. Maltby, was in the Cornish City. At 5 p.m. on November 5, a fine evening with a smooth sea, a light south-easterly breeze and extreme visibility, a strange warship was sighted ten miles to the northward—on the port beam—which at once opened fire with a salvo which fell in the middle of the convoy. It was the Admiral Scheer.

The Jervis Bay at once steamed out towards the enemy to engage, while the ships of the convoy altered course in the opposite direction, opening fire at the same time with their defensive armaments, though they were all probably out of range. The Commodore then ordered them to drop smoke floats and scatter. The Jervis Bay, in the meanwhile, though she probably never got within effective gun-range of the raider, held the enemy's fire for a full hour before her guns were put out of action by damage and fire. By that time it was so dark that the raider could sink no more than four out of the thirty-seven ships of the convoy.

The Jervis Bay sank two hours later taking with her her gallant captain and all but some sixty-five of her company. They were picked up by the Swedish steamer which gallantly returned to the spot for that purpose after the raider had passed on in his pursuit of the other ships. Captain Fegen's intrepid devotion, which had saved nine-tenths of his convoy at the cost of his ship and his life, was recognised by the award of a posthumous V.C. The raider vanished into the waste of waters, and where she went next is not known.

Indications of other raiders at large recurred more often during the month. On November 7 and 8 a British and an American ship struck mines in the Bass Strait, between Australia and Tasmania, which were then promptly swept up, and found to be German. On November 24 the Mackay Radio reported signals from the s.s. Port Hobart that she was being shelled some 500 miles north-east of the Windward Islands.

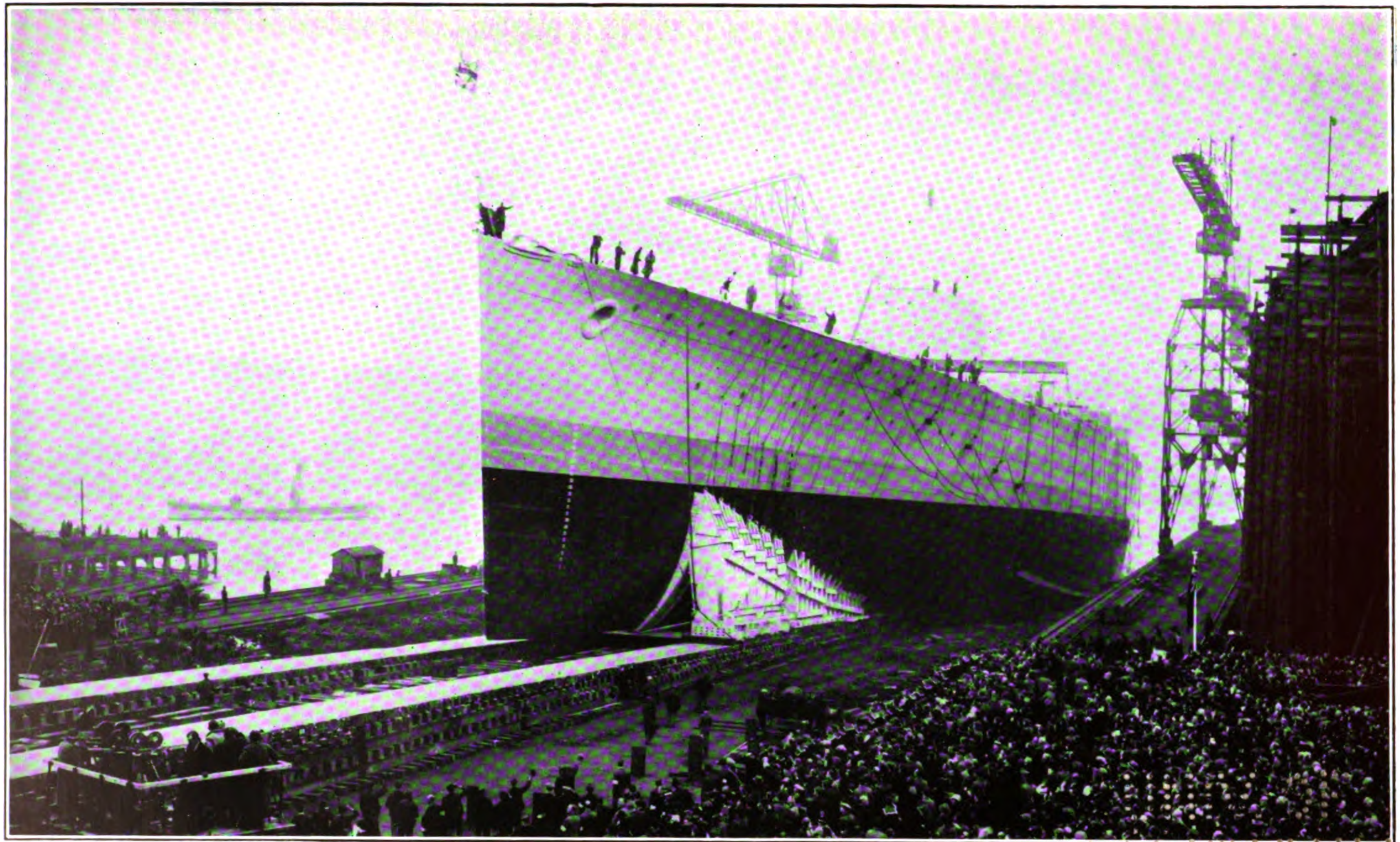
On November 22 the s.s. Port Brisbane was sunk by a raider in the middle of the Indian Ocean, though the fact was not known until five days later when survivors were brought into an Australian port. The raider, as described by them, was similar to the Narvik, engaged by the Alcantara in the Atlantic on July 31.

The air attacks upon the enemy's " invasion ports " continued practically nightly throughout the month, and the gun duels across the Dover Strait were frequent, the German guns sometimes firing on convoys and sometimes on the Kentish shore. Kiel and Wilhelmshaven were bombed on November 25.

German shipping was continuously harassed. On November 2 the Taku sank an enemy tanker which was going towards a French occupied port. A few days later the Sturgeon sank two supply ships close to the enemy coast. On November 19 an E-boat was sunk in the North Sea and her crew rescued. On November 27 a tanker and another supply ship were sunk by aircraft of the Coastal Command off the Frisian Islands and similar successful attacks were made on the two following days.

At 5.40 a.m. on November 29 a small force of British destroyers, under the command of Captain Lord Louis Mountbatten in the Javelin, made contact with three or more German destroyers in the chops of the Channel. The enemy immediately scattered and retreated towards Brest. They were chased and were seen to be repeatedly hit, but made their escape. The Javelin was hit by a torpedo—a form of attack from which a retreating force is immune—and disabled, but was brought safely back to harbour. She was attacked by enemy bombers three times on the passage, but they were fought off by R.A.F. fighters and all three attackers shot down.

The little ships again did much execution against German dive-bombers during the month. On November 7 the Egret shot one down over the Thames Estuary and hit another. The next day the Winchester shot down two which were attacking shipping there and hit three more. On November 11, in the North Sea, the Vivien shot down one which was attacking a convoy and hit another; the Londonderry shot down one, and the St. Mellons shot down one and hit another. The Germans claimed to have sunk seven merchant ships in this attack, totalling 44,000 tons. Actually, only two ships were hit and both reached harbour. On November 17 the Southsea,



The launch of H.M.S. King George V.

CALIFORNIA

paddle minesweeper, shot down one which was attacking her. On November 20 the Lowestoft shot down one and hit another.

The adventures of four German merchant ships which had been taking refuge in Tampico are not uninteresting. The Phrygia, Orinoco, Rhein, and Idarwald put to sea on the evening of November 15 intending, it is believed, to join a German raider in the Atlantic. Outside, they sighted what they took for British warships, whereupon the Phrygia was immediately scuttled by her crew—no doubt delighted to be able so to please their Führer! The other three returned to harbour. Actually the ships they had sighted were American destroyers on "neutrality patrol," so the enthusiasm of the Phrygia's crew was premature.

The Rhein and Idarwald sailed again on November 28, the latter was intercepted on December 8, in the Caribbean, by H.M.S. Diomede, and was at once scuttled and set on fire by her crew. The Rhein was intercepted on December 11 by the Dutch sloop Van Kinsbergen and also scuttled. The Orinoco, more discreet, remained at Tampico.

The Vichy Government maintained its petulant attitude towards Britain. The Admiralty found it necessary on November 9 to issue a formal denial of a report circulated by Vichy that a British squadron had shelled Libreville in French Equatorial Africa, or that British forces had taken any part in the landing there of Free French forces under General de Gaulle. The French submarine Poncelet attempted to attack a British warship without warning and the attempt was resisted; its result was that the Poncelet surfaced and was then scuttled by her crew, who were picked up. They were later returned to French territory.

Two armed merchant cruisers, besides the Jervis Bay, were lost during the month, torpedoed by U-boats—the Laurentic and Patroclus. The casualties were not heavy in either. The latter was stated to have been picking up survivors from the Laurentic when she was attacked simultaneously by more than one U-boat. Two submarines were also reported lost—H.49 and the Rainbow.

The casualties were again heavy amongst auxiliary warships. Eleven trawlers, one drifter, and the Free French patrol boat Le Poulmic were lost, chiefly by mines.

DECEMBER.

As the Greek troops advanced into Albania R.A.F. bombers attacking the little port of Santi Quaranta, hit and disabled an Italian destroyer there. When the Greek forces occupied the town two days later the destroyer was captured and towed away to be repaired and embodied in the Greek Navy.

Turin was again attacked by the R.A.F. on the night of December 4, and air photographs of the damaged battleships at Taranto were dropped there.

The Army's advance in the Western Desert of Egypt began on December 9, and from the night before, when Maktila and Sidi Barrani were bombarded from the sea, the Mediterranean Fleet and its auxiliaries were fully occupied in coastal operations in its support.

In three days Sidi Barrani and the whole of the supplies and equipment accumulated for the conquest of Egypt were in British hands. The Navy's operations moved along the coast with the enemy's retreat, both heavy and light ships, as well as the Fleet Air Arm, constantly harassing the Italian lines of communication. Besides this direct co-operation, the Navy rendered invaluable aid to the advanced units of the Army by landing both water and supplies directly to them on the coast, relieving them, as they advanced, of the custody and transport of prisoners by the thousand, and later on taking back by sea damaged tanks and mechanical transport vehicles which were capable of being repaired.

Hardly any opposition by sea from the Italians was encountered. On December 13 an E-boat attempted to attack but was repulsed. The next day the submarine Naiade, also attempting to attack the ships bombarding Sollum, was immediately sunk by British destroyers. On December 16 one of the bombarding ships was attacked by Italian torpedo aircraft, after which, according to the account concocted in Rome for Italian consumption, she listed and sank. In reality, she was not hit and continued bombarding. The next night the Ladybird once more penetrated right into the harbour of Bardia, and sank three ships there. But although one year closed with the place surrounded and on the point of falling into our hands the subsequent magnificent successes belong to the history of 1941.

While these intensive operations were proceeding on the Libyan coast, the harassing of Italian sea communications elsewhere was not neglected. On the night of December 13 the Truant, on patrol off Cape Spartivento (Italy), attacked a convoy of heavily laden ships, evidently taking supplies to Libya, sank one and hit another which may have sunk too. The next night she sank a tanker off the Calabrian coast. On December 13, too, the Fleet Air Arm bombed Tripoli Harbour and hit several ships there. On December 14 Naples was attacked from the air and the enemy admitted damage to " a naval unit of medium tonnage." The British account described how bombs burst close to two battleships and five direct hits were made on a concentration of cruisers and destroyers. On December 17 the Fleet Air Arm attacked Rhodes, Stampalia, and Scarpanto.

On the night of December 18 British cruisers and destroyers swept the Adriatic as far as Bari and Durazzo, while the battleships of the Mediterranean Fleet bombarded Valona. No opposition was encountered from any ship of the enemy, but the Hyperion struck a mine and was disabled. As it proved impossible to tow her back to her base she had to be abandoned, and was sunk by a British torpedo.

On the night of December 20 the Fleet Air Arm attacked Tripoli again and the next day torpedoed two out of three ships, escorted by a destroyer, which were bound thither. All the while the constant coastal service was maintained for the Army.

At 2 a.m. on December 29 an Australian destroyer on patrol off the coast sighted and closed the 100-ton schooner Singarella, to find that she had on board about one hundred Italian soldiers who were trying to get away by sea, taking with them nine British soldiers, the only prisoners taken by the Italians in the campaign. The positions thereafter were reversed, it was too rough to board, but the nine British soldiers took charge and the Singarella followed the destroyer back to the base.

On December 29 the Italian command announced the loss of an Italian submarine in the Atlantic. This was in all probability the one which was torpedoed by the Thunderbolt (*ex*-Thetis) when going into a German-occupied French Atlantic port escorted by three armed trawlers.

Another Italian submarine in the Atlantic—or possibly the same one—had torpedoed the French submarine Sfax and oiler Rhone, while they were going in company from Casablanca in Dakar on December 19. From yet another, which was put out of action by British craft, was captured an order from Admiral Falangola, commanding Italian submarines, that Spanish merchant ships of the Ybarra and Pinillos lines—of which the markings were described—were to be torpedoed without warning. How this was to be reconciled with the professed Italian friendship for Spain it is difficult to conceive.

In the Atlantic the chief event of the month was a fight between the armed merchant cruiser Carnarvon Castle and a German disguised raider. The action lasted ninety minutes, and it was a chase the whole time, the enemy trying repeatedly to break off action behind smoke screens. Hits were made on both sides, and the raider's speed was reduced ; but eventually the Carnarvon Castle was hit in the engine room and her speed reduced so much that the enemy was able to get away. The Carnarvon Castle went to Montevideo, where she was allowed seventy-two hours for repairs, but left before the time elapsed.

The next that was heard of a raider—a different one—was when the undefended island of Nauru was shelled on December 27 by a ship which approached under Japanese colours, but hoisted German colours before opening fire. The phosphate installation was wrecked. Four days later, 500 British, French, and Norwegians, survivors of ships' companies and passengers from seven ships captured by the same German raider, reached Melbourne. They had been confined in two of the raiders' tenders, both of which bore Japanese names, Tokyo Maru and Manyo Maru, until they were landed on the lonely island of Emirau. The planter and his wife who lived there at once went off in a schooner to summon rescue from Australia.

In home water air attacks on the invasion ports continued steadily, combined now with attacks on Lorient which was in use by the enemy as a U-boat base. M.T.B.'s were also active. On December 1 a patrol of them torpedoed the German s.s. Santos off the Scheldt. On December 5 they raided an unspecified port of the enemy-occupied coast. On December 18 they torpedoed a 6,000-ton ship and her armed trawler escort off the Belgian coast.

Early in the month the Sunfish torpedoed a 4,000-ton ship laden with iron-ore for Germany off the Norwegian coast, and also hit a tanker. On December 27 an aircraft of the Coastal Command destroyed with bombs a 4,000-ton German ship in the harbour at Egersund. The next day the Fleet Air Arm did the same thing at Haugesund.

An increasing number of air attacks were made on British shipping up to 400 miles west of Ireland, by long-range bombers acting sometimes independently and sometimes in conjunction with U-boats. This was no doubt the reason for the Prime Minister's pronouncement on December 10 on the subject of the Coastal Command. He said:

> "I have come to the conclusion that while there is no need at the present time to change the position of the Coastal Command as part of the Royal Air Force, it is necessary that the Coastal Command should play a more important part than it has hitherto done in trade protection, and that for this purpose substantial increases, some of which have already been effected, will be necessary. Moreover, as the function of the Coastal Command is that of co-operation with the Royal Navy, the operational policy of the Command must be determined by the Admiralty, of course in consultation with the Air Officer Commanding in Chief. Excellent relations have been established since the war between the two Services and the closest contact exists between the naval and air authorities. I am satisfied that the integrity of operational direction will be fully achieved."

On the morning of Christmas Day a British convoy in the Atlantic was attacked by what was described in the Admiralty statement as "a powerful enemy surface warship," which opened fire on it at dawn from long range in variable visibility. The convoy escort at once engaged the assailant, but one ship in it had already been hit and had received slight damage. H.M.S. Berwick, one of the escort, was hit once in the engagement that followed, and had five casualties, but one of her 8-inch shells was observed to burst amidships on the enemy.

Then the enemy had luck on his side, for the visibility rapidly decreased, and he was able to elude observation and get away. During the chase in low visibility the German s.s. Baden, 8,200 tons, which had obviously been acting as a supply ship to the raider, was encountered by our ships. She was at once set on fire by her crew who abandoned her, and she was sunk by our forces.

It was disappointing that the attacker got away, but the episode fully illustrated the efficacy of the convoy system, for the convoy was very effectively defended.

H. G. T.

CHAPTER II.

FOREIGN NAVIES.

With the extension of the war over a wider area of Europe, the prospect of providing an adequate account of the progress of every foreign navy during 1940 has sensibly declined. But on the other side of the North Atlantic the effect has been to accelerate enormously the expansion of the United States Navy to meet the menace of Axis aggressiveness.

In spite of the utmost efforts of submarines, surface raiders, and aircraft to arrest the flow of every kind of necessity to the ports of Britain, this has continued in sufficient volume not only to maintain food supplies at a higher level than in 1917–18, but to augment materially the Allied armaments. Nor did the entry of Italy into the war prevent the Army of the Nile and our Greek allies from receiving the necessary equipment and reinforcements to enable them to win important victories.

From the gross exaggerations in which various German speakers —notably Admiral Raeder—have indulged from time to time, it is clear that they had hoped to inflict far heavier losses on merchant shipping than have actually been accomplished. When the severe handicap imposed by the simultaneous withdrawal of France from the conflict and the addition of Italy to the ranks of the enemy is taken into consideration, it is indeed remarkable that losses were so far controlled during the second half of last year as never to approach the dangerous level of April, 1917.

Undoubtedly several surface raiders have been at work simultaneously in different areas ; but their inability to remain on a main trade route for any length of time, coupled with the effectiveness of the convoy organisation, has so far set a limit to the extent of their depredations.

On at least one occasion a " pocket battleship," believed to be the Admiral Scheer, made her appearance in the Atlantic. On November 5 she made a determined attack on a convoy, but the amount of destruction done was far less than might have been expected, 34 vessels reaching safety out of a total of 38. Credit for this must be assigned to the gallant fight made by H.M. armed merchant cruiser Jervis Bay (Captain E. S. F. Fegen, R.N.). Without hesitation Captain Fegen engaged his formidable adversary and thus delayed her long enough to enable the ships of the convoy to scatter. His action is comparable with that of the Rawalpindi against similar odds a year earlier. Another attack was made on a convoy off Madeira in February of this year, when 7 merchantmen out of a total of 19 were sunk by an unidentified raider.

Air attack against shipping has been successful only in a limited degree, the most important loss accomplished by this means being that of the Empress of Britain—yet another example of the vulnerability of the very large Atlantic liner in war time. Undoubtedly our adversaries have found their aircraft useful in locating convoys, especially since they have been based on French aerodromes.

Mines, though they continue to be troublesome when strewn from the air in the approaches to harbours, have not been a major factor in the tale of shipping losses. The U-boat is still the enemy most to be feared, though as the supply of escort vessels becomes more plentiful, enemy submarines are likely to find their nefarious operations increasingly hazardous.

Most notable of the lessons of the past year is that, though they cannot be seriously injured by bombing, battleships at anchor can be crippled by torpedo attack from the air. Oran, Dakar, and Taranto have provided proof of this.

UNITED STATES.

In view of the immensity of the programmes of new construction now in hand, it has been thought wise to devote a special chapter to their details. For the last financial year, the naval appropriation was $1,867,451,208, though even this huge sum is unlikely to cover all the expenditure in sight.

At the New England Conference on November 14 last, the Secretary of the Navy, Colonel Knox, emphasised the urgency of swiftly adding to America's naval defences in view of the gravity of the international situation. Quite apart from the danger of the European War spreading westward, he pointed out that the possibility of some kind of understanding being reached between Russia and Japan would have serious implications for the United States.

He referred in glowing terms to his flight across the Eastern Pacific to Honolulu a few weeks previously, where he was the guest of the U.S. Fleet for five days. He had formed the highest opinion of the efficiency and keenness of its personnel, but stressed the need for more warships of every category. " No matter what the cost, it is cheaper to be ready too soon and too much than too little and too late," was his summing up of the situation.

A new asset which the American naval authorities evidently prize highly is the acquisition on lease for a period of 99 years, free from all rent, of sundry naval and air bases in British territory on the western side of the Atlantic. These facilities were formally accorded to the United States by an exchange of notes between Mr. Cordell Hull, the U.S. Secretary of State, and the late Lord Lothian, British Ambassador in Washington. As related elsewhere, the consideration involved was the transfer to the British Government of 50 destroyers built at the end of the last war.

A sum of $75,000,000 has been allotted by the U.S. Government for the development of the sites selected. These are situated at Little Placentia and in St. George's Bay, in Newfoundland; on St. David's Island, in the Great Bay of Bermuda; at Mayaguana Island, in the Bahamas; on the south coast of Jamaica; in Gros Islet Bay, and at Vieuxfort, in the island of St. Lucia; in the island of Antigua; on the west coast of Trinidad, in the Gulf of Paria; and in British Guiana, within 50 miles of Georgetown.

Taken in conjunction with the existing American naval and air establishments at Guantanamo, Cuba; San Juan, Puerto Rico; and in the Virgin Islands, the possession of these bases adds materially to the strength of the strategic position occupied by the United States.

All patriotic Americans must regret that the repeated efforts of the Navy Department to obtain authority to equip the island of Guam, in the Western Pacific, as a naval base, should have failed to win approval in Congress until this year. In the present crisis the value of such a base would be inestimable. Its advantages were fully described in this section of "Brassey" a year ago, and were confirmed in a recommendation made to the House of Representatives by its Naval Affairs Committee on February 15. Apparently the base at Tutuila is also to be developed.

So far as naval construction goes, unprecedented efforts are being made to complete ships ahead of schedule and to lay down new ones as fast as slips become vacant. It was stated by the Secretary of the Navy in November that the National Defence programme was then "a full year ahead of schedule."

BATTLESHIPS.

In pursuance of the above-mentioned policy, the battleship North Carolina, first of a class of six 35,000-tonners, is expected to go into commission on April 11, 1941, just under three and a half years from the date of laying her keel at New York Navy Yard. Originally it had been proposed to complete her by November next. Still greater acceleration is to be arranged for the second ship of the class, the Washington, in hand at Philadelphia Navy Yard, originally down for delivery in October, 1942, and now to be commissioned in May, 1941. Both ships were launched last June, though the Washington was not begun until June, 1938.

Of the other four ships of the class, the Indiana, Massachusetts, and South Dakota, laid down in 1939, will be launched in the course of the present year, while the Alabama, begun in 1940, will go afloat early in 1942.

It is interesting to note that the North Carolina is the fourth ship of the United States Navy to bear the name of that state. The first was a ship of the line of 74 guns, launched at Philadelphia in September, 1820; the second was an armoured cruiser of 14,500 tons which served from 1906 to 1930, though in 1920 she was renamed Charlotte; while the third was a battleship scrapped before completion under the terms of the Washington Naval Treaty of 1922.

There are also under construction or on order, under the various programmes authorised in 1939 and 1940, eleven more battleships, to cost over $100,000,000 each, none of which is to displace less than 45,000 tons. Of these, the Iowa was laid down at New York Navy Yard on June 27, 1940; the New Jersey at Philadelphia Navy Yard on September 16, 1940; the Wisconsin at the same yard on January 25, 1941; and the Missouri at the New York Yard on January 6, 1941, on the slip vacated seven months earlier by the North Carolina. Since the last-named ship took the water, the ways have been reconstructed and their length increased to 900 feet, the cost of this work amounting to approximately $1,500,000.

In the course of the present year at least half a dozen other battleships will be begun. Of these it is said that the Ohio, to be laid down in dry dock at Philadelphia in September, will be the first of a still larger design, to displace 52,000 tons. Other names selected are Illinois, Montana, Kentucky, Louisiana, Maine, New Hampshire, orders for which are being divided equally between the Navy Yards at New York, Philadelphia and Norfolk, Virginia.

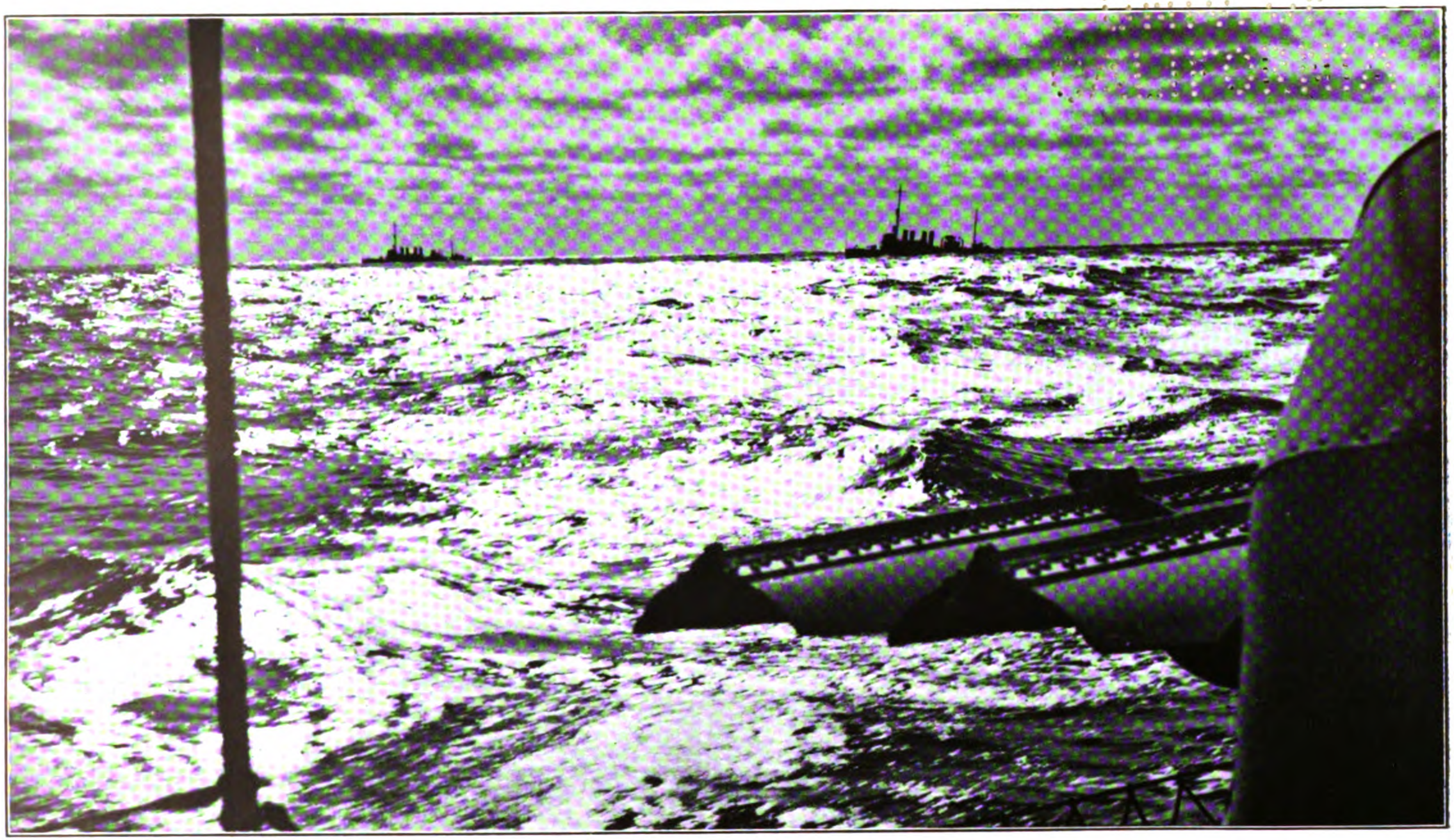
Though it had been arranged to modernise the battleships Colorado, Maryland, West Virginia, California, and Tennessee this year, it appears now to have been decided that these powerful units cannot be spared from the Fleet in present circumstances. But all capital ships, aircraft carriers, and cruisers are to be given additional anti-aircraft armament.

AIRCRAFT CARRIERS.

The aircraft carrier Wasp, of 14,700 tons, was completed in April of last year. Her hull form resembles that of the Ranger, a ship of similar size completed in 1934, but the superstructure follows the same pattern as the Enterprise, though with a lighter type of funnel.

The third ship of the "Enterprise" type, the Hornet, was launched from the Newport News Company's yard on December 14, 1940, in order to clear the ways for the new aircraft carrier Essex. The latter is to be the first of a class of eleven, displacing about 26,000 tons. Other names assigned are Bon Homme Richard, Intrepid, Kearsarge, Franklin, Hancock and Randolph, which will all be built at Newport News. Construction of the Cabot, Bunker Hill, Oriskany and Ticonderoga will be undertaken by the Bethlehem Steel Company's Fore River Plant, at Quincy, Mass. Work will begin on all eleven vessels in the course of 1941.

When all these new ships are ready, the United States Navy will be able to dispose of a force of 18 aircraft carriers, convincing evidence of the belief of the American authorities in the value of aircraft in naval warfare. But in order that this total may, if need arises, be raised to 20, the U.S. Maritime Commission announced recently that negotiations were on foot for the construction of two liners which could readily be transformed into aircraft carriers in emergency. Designed to have two funnels on the starboard side, each ship will be of 35,500 tons displacement and will have a speed in excess of 30 knots. Length over all will be 759 feet, with



Ex-American destroyers on passage to England, September, 1940.

(British Official photograph.)

accommodation for 759 passengers. The lowest tender received was from the Seattle-Tacoma Shipbuilding Corporation, who offered to build them for $28,458,000 each.

In peace time it is contemplated that these ships should run on the Trans-Pacific route, as an effective reply to the Japanese proposal to place two 24-knot liners on this service. They will be operated by the American President Line.

CRUISERS.

At the present time the United States Navy has in service 18 heavy and 19 light cruisers. Under construction or on order there are 14 more heavy and 40 light cruisers, some of which will doubtless replace the ten ships of the " Omaha " class, nearing obsolescence.

The Bethlehem Steel Company, Quincy, will build the Baltimore, Boston, Pittsburgh, and St. Paul, together with four other heavy cruisers, all displacing about 13,000 tons, as well as the Flint, Pasadena, Springfield, Topeka, and two other light cruisers of 10,000 tons, and the San Diego and San Juan, of 6,000 tons. The same concern's Union Plant, at San Francisco, has received the contract for four more light cruisers of 6,000 tons.

To the New York Shipbuilding Corporation have been assigned contracts for four heavy cruisers of 13,000 tons and eleven light cruisers of 10,000 tons, the latter including the Cleveland, Columbia, Denver, Montpelier, Amsterdam, Santa Fe, and Tallahassee. The first four of these named ships were actually laid down last year.

The Newport News Company will construct two 13,000-ton and two 10,000-ton cruisers. To the latter the names Birmingham and Mobile have been assigned.

From the Federal Shipbuilding and Dry Dock Company, of Kearny, N.J., will come seven cruisers of 10,000 tons and two of 6,000 tons, the Atlanta and Juneau. Six more cruisers were ordered in December from the Cramp Shipbuilding Company of Camden, N.J., which it is understood will be of the 10,000-ton type.

Though official particulars have still to be issued, it is believed that the heavy cruisers will each mount nine 8-inch guns, and the other two types twelve 6-inch and twelve 5-inch (dual purpose) guns, respectively, as their main armaments.

DESTROYERS.

By the time this chapter appears most, if not all, of the 24 destroyers of the " Benson " class should be in commission. This will leave under construction or on order no fewer than 193 destroyers, belonging to two different types. One of these types will apparently be designed for flotilla leader duties and will displace 2,100 tons, while the other will be of about 1,700 tons. Respective armaments are expected to be eight and five 5-inch guns, with at least ten torpedo tubes.

Builders of these ships will include the Navy Yards at Boston, Norfolk, Charleston, and Puget Sound; the Bethlehem Company's

Plants at Quincy, San Francisco, San Pedro, and Staten Island; the Bath Iron Works Corporation; the Federal Shipbuilding and Dry Dock Company; the Seattle-Tacoma Shipbuilding Company; the Consolidated Steel Corporation, Orange, Texas; and the Gulf Shipbuilding Corporation, Chickasaw, Alabama. It would appear that the two last-named concerns are newcomers in the field of naval construction. Average cost per ship is estimated at $6,300,000.

When all these new destroyers have been delivered, the total number in the United States Navy will be 365, notwithstanding the transfer of 50 to the British flag.

SUBMARINES.

Submarines under construction number between 70 and 80. Most of the "Tambor" class, of 1,475 tons, have been commissioned, and the Mackerel and Marlin, of 800 tons, should also be in service by this time. The 1,500-ton "Gato" class are understood to be slightly improved versions of the "Tambor" design, and it is probable that most of the 65 that have been ordered since the six Gatos were put in hand will be of that type, though some may belong to the "Mackerel" class. The contractors concerned with these 65 are the Portsmouth Navy Yard (14); the Mare Island Navy Yard (6); the Electric Boat Company (35); and the Manitowoc Shipbuilding Company, Wisconsin (10). Apparently the last-named firm is a sub-contractor of the Electric Boat Co.

OTHER SHIPS.

Other new construction in hand includes a considerable number of motor torpedo boats and submarine chasers; one heavy and 16 light aircraft tenders; three destroyer tenders; three minelayers; seven submarine tenders; three or four repair ships; five oilers; two transports; 32 netlayers; five submarine rescue vessels; and nine minesweepers. This takes no account of the numerous vessels of mercantile and pleasure types that have been taken over by the Navy Department for various purposes, including up to the time of writing two aircraft tenders, one submarine tender, one surveying ship, three store ships, two ammunition ships, nine oilers, three cargo ships, one hospital ship, eleven transports, forty minesweepers, nearly thirty yachts, and a considerable number of tugs and other small craft.

So rapidly, indeed, do events progress that it is not easy to keep pace with the orders and purchases made.

NAVAL AIR SERVICE.

Included in the numerous orders in hand for aircraft are about 2,100 bombers of the flying-boat type. Contracts for these were placed in October and November last with the Glenn L. Martin

Company of Baltimore and the Consolidated Aircraft Corporation of San Diego.

A new air training establishment is being completed at Corpus Christi, Texas. It will be the only naval air station equipped to give a complete course of instruction in flying every type of aircraft used in war. In this respect it will eclipse the new training base at Jacksonville, opened last December.

PERSONNEL.

Colonel W. Franklin Knox relieved Mr. Edison as Secretary of the Navy last year.

On February 1, 1941, the United States Fleet was reorganised into the Pacific, Atlantic, and Asiatic Fleets, with the Commander-in-Chief of the Pacific Fleet also acting as Commander-in-Chief of the United States Fleet and prescribing methods and standards of training for all seagoing forces of the Navy. Each Commander-in-Chief will ordinarily be responsible to the Chief of Naval Operations.

Simultaneously the Secretary of the Navy announced that the future Commanders-in-Chief of the three Fleets would be :—

Commander-in-Chief, U.S. Fleet (also C.in-C., Pacific Fleet), Admiral Husband E. Kimmel.

Commander-in-Chief, Atlantic Fleet, Admiral Ernest J. King.

Commander-in-Chief, Asiatic Fleet, Admiral Thomas C. Hart.

Admiral Kimmel succeeds Admiral J. O. Richardson, while Admiral King relieves Rear-Admiral Hayne Ellis, who is to join the General Board at Washington.

The Secretary also announced an increase of 42,000 in the enlisted personnel of the Navy, which will bring up to 100 per cent. war strength all ships in commission.

In his annual report issued in December, 1940, Rear-Admiral Chester W. Nimitz, Chief of the Bureau of Navigation, stated that the situation as regards the provision of officers for the U.S. Navy was causing " grave concern. . . . It has been found necessary to reduce considerably the number of regular active officers ashore, replacing them with reserve and retired officers, in order that newly commissioned vessels could be manned. In addition, the numbers of regular officers in individual ships of the Fleet have been reduced to a minimum in order to maintain an appropriate nucleus of officers in newly commissioned and recommissioned vessels. Limited replacements have been accomplished by the employment of reserve officers in sea billets."

During the fiscal year 1940 the ships of the Navy operated with only 87·2 per cent. of their maximum authorised complements. Rear-Admiral Nimitz therefore recommended that, in view of the world emergency, every combatant ship should carry not less than 115 per cent. of complement, or as many men as could be accommodated on board.

The total number of officers and men on duty in September, 1940, was 239,281.

FLEET MOVEMENTS.

For the first time in more than twenty years the United States Pacific Fleet will not engage in large-scale exercises this year. Instead, the Fleet is being held as a unit in Hawaiian waters, and will remain there until the existing international situation has definitely improved.

Last year's exercises, which involved the solution of what was known as "Fleet Problem 21," lasted from the first week in April until the latter part of May, covering a wide area in the Eastern Pacific. It was officially stated that the problem was designed "to increase the effectiveness of all types of surface ships, submarines, and aircraft, and to cover as far as practicable some of the special naval situations that have occurred during the current European conflict."

These exercises were among the most extensive ever carried out by the Fleet, involving about 130 fighting ships manned by about 2,500 officers and 40,000 men. In 1939 practically the same number of ships and men were employed in exercises in the Atlantic, extending from the Caribbean Sea to the latitude of Northern Brazil.

This year, although the usual exercises will not be held, the Fleet is being kept very busy, gunnery practice being the dominant feature. The divisions of the Fleet are frequently engaged in tactical exercises, as far as possible simulating battle conditions. Every battleship in the Fleet has been refitted and is ready for instant action in case of emergency. The reconditioning of the battle force was accomplished by transferring the ships concerned to the west coast in sections. As fast as one section had been overhauled and had rejoined the Fleet, another section was detached for the same purpose. As a result, all battle units are now considered to be ready to fulfil any duty which they may be ordered to undertake.

Immense interest was aroused in the United States when Viscount Halifax, the new British Ambassador in Washington, arrived in Chesapeake Bay on January 24 in H.M.S. King George V. Passing the Navy Yard at Norfolk, she proceeded to Annapolis, where she was visited by President Roosevelt, as well as by the Secretary of the Navy and the Chief of Naval Operations, Admiral Harold R. Stark. She remained in American waters for 21 hours, having been the first warship belonging to a belligerent power to enter a port of the United States since hostilities began.

JAPAN.

Though the war in China drags on interminably, those who now control Japan's destinies appear to be contemplating still more hazardous adventures further south. It remains to be seen whether the resolute attitude adopted by the United States will induce the Japanese Government to reconsider the dangerous line of action upon which they have embarked at the instigation of Germany.

A further increase of about 25 per cent. on the previous year's estimates was shown by the naval budget for 1940–41, which provided for an expenditure of 1,029,075,517 yen.

BATTLESHIPS.

Little further information is available concerning the new Japanese battleships under construction. One appears to have been launched, the Nissin at Kure on November 30, 1939. A second, the Takamatu, is under construction at Yokosuka. At least three more are believed to be building, of which one is reported to be in hand at Kure Naval Dockyard and one at the Mitubisi Company's Nagasaki establishment. Whether the remaining ship has been laid down at Maiduru or at the Kawasaki yard at Kobe is still uncertain.

Reports have appeared in America to the effect that two of these new battleships are to be named Kii and Owari. It is doubtful whether there is any foundation for this assumption, which may be based on the fact that two battleships bearing these names were projected in 1921, though their construction was abandoned as the outcome of the Washington Naval Conference.

Four armoured ships of moderate displacement, variously reported as from 12,000 to 14,000 tons, are persistently reported to be nearing completion, if indeed one of them has not already been delivered. A French source identifies one of these with the mysterious Kadekuru, said to have been launched at Yokosuka either on June 1 or some time in September, 1939. This name has probably been mutilated, since it cannot be identified with any Japanese word. It is even possible that it may prove to be a distorted version of Syokaku, the name of an aircraft carrier launched at Yokosuka on June 2, 1939.

Two other names which it is thought may belong to ships of this type are the Kasino, launched at the Mitubisi Company's yard at Nagasaki on January 26, 1940, and the Hachijo, which went afloat on April 10, 1940. It is uncertain whether the latter ship was also built at the Mitubisi yard, or if she was launched at Saseho. A fourth ship is supposed to be in hand at Maiduru, a naval dockyard which has been enlarged and extended in recent years.

So far as can be gathered from the various accounts received, these ships follow the German " pocket battleship " design in their main features, but possess greater speed and slightly better protection. It is said that they are armed with six 12-inch and twelve 5-inch guns.

AIRCRAFT CARRIERS.

A third ship of the " Soryu " class, of 10,050 tons, is suspected to have been completed last year. Two others, the Syokaku, mentioned above, and the Zuikaku, launched on November 27, 1939, should be ready for delivery towards the end of this year. Undoubtedly they are of a heavier type, and may be anything from 14,000 to 20,000 tons.

CRUISERS.

Little more has been ascertained concerning the cruisers which for a considerable time past have been reported to be under construction. Probably the Tugaru, launched at Yokosuka on June 5, 1940, is one of them. Two others may be the Sumida and Hasidate, launched on October 30 and December 23, 1939, respectively, but as both are stated to have been built at the Hudinagata Company's yard, this would imply that the concern in question is undertaking the construction of bigger ships than it has been in the habit of turning out in the past.

DESTROYERS.

At least four destroyers of the 2,000-ton type are known to have been launched during 1940, and probably the number is actually greater. About 20 obsolete destroyers, built during the years immediately succeeding the last war, have been removed from the effective list and have presumably been scrapped.

SUBMARINES.

Particulars of the submarines I.16, 17, 18, 19, and 20 supplied from official sources show them to be the largest ever built in Japan, with a standard displacement of 2,180 tons. In size they are surpassed only by the French Surcouf and the American Argonaut, Narwhal, and Nautilus. Their surface speed is 20 knots, and they are armed with eight torpedo tubes, one 5·5-inch gun, and two smaller pieces. Whether such huge underwater vessels are a good investment is a moot point, but experience in other navies suggests that their value is questionable.

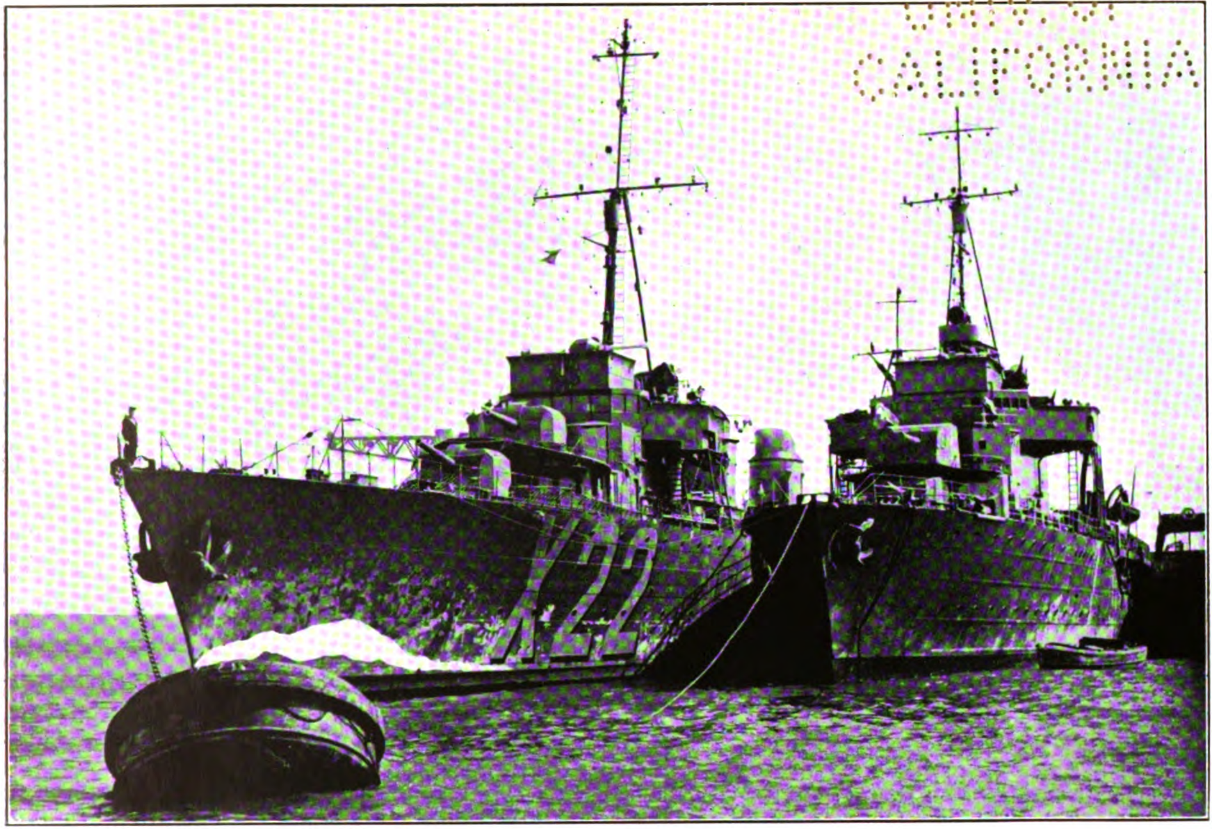
Submarines bearing numbers I.9 to I.15 are also believed to exist, but these are probably of the same type as "I.7," of 1,950 tons. Other numbers reported are from I.21 to I.30, of which no particulars are available. They may be improved editions of the "I.71" type. A large submarine bearing the number I.128 is also said to have been sighted; she may, of course, prove to be a misreading of the name I.28, but if not, this suggests that yet another design is being developed. As I.121 to I.124 are minelayers, four more submarines fitted for this duty may have been built and numbered I.125 to I.128.

MISCELLANEOUS.

The Kasima and Katori, originally supposed to have been cruisers, now prove to be seagoing training ships of 5,800 tons, armed with four 5·5-inch and two 5-inch (anti-aircraft) guns and eight torpedo tubes. As their speed is no more than 18 knots, they cannot legitimately be classed as cruisers. As suggested last year, it is quite possible that they are intended for use as minelayers in time of war, in which case they may be regarded as enlarged versions of the 4,400-ton Okinosima, launched in 1934.

Small minelayers of the "Sokuten" type, of 720 tons, continue to be turned out at frequent intervals. Additional names reported are Isakuyi, Kasii, Kunaziri, and Kyosai, while the Sumisu, formerly believed to be a gunboat, is now thought to be one of this class. But the Uji, launched last September, is probably a gunboat.

UNIV. OF CALIFORNIA



Free French warship in a British port.

(*Fox photograph.*)

Six cargo vessels built during 1936–38, the Kagu Maru, Kamikawa Maru, Kinagawa Maru, Kinugasa Maru, Takyo Maru, and Yagasa Maru, have been taken over by the Navy and converted into auxiliary seaplane carriers.

FRANCE.

Since the surrender of France to her invaders, little news has been heard of French naval construction, but it is believed that most of the ships building in the occupied ports on the Atlantic and Channel were effectually demolished by high explosive charges before they could be seized. It is doubtful whether any progress has been made with ships under construction in Mediterranean yards.

BATTLESHIPS.

Of the four 35,000-ton battleships which were authorised under the 1935 and 1938 programmes, only the Richelieu was ever completed. As is well known, she was crippled by means of depth charges exploded under her counter and further damaged by torpedoes dropped by Swordfish aircraft from H.M.S. Hermes at Dakar on July 8, 1940. Her sister ship, the Jean Bart, is lying at Casablanca in an incomplete state, while the hull of the Clemenceau is understood to have been wrecked by explosives at Brest before that port was evacuated. The fourth ship, the Gascogne, seems never to have been begun.

The Dunkerque, at Oran, is believed still to be non-effective, though her sister ship Strasbourg escaped to Toulon in a damaged state. The Bretagne and Provence were put out of action at Oran at the same time as the Dunkerque.

Of the remaining three French battleships, the Lorraine has been demilitarised and laid up at Alexandria, while the Courbet and Paris are both in British ports.

AIRCRAFT CARRIERS.

It is not believed that a great deal of progress had been made with the Joffre and Painlevé at St. Nazaire before that port fell into the hands of the enemy; and it is believed that the hulls were destroyed on the stocks.

The Béarn has been lying at Fort de France, Martinique, ever since the Armistice with Germany was signed, and there she is likely to remain.

CRUISERS.

Of the three new 8,000-ton cruisers that were to have been built, only the De Grasse seems to have been begun, and her hull was doubtless demolished at Lorient. Of cruisers already in service, the Suffren, Duquesne, Tourville, and Duguay-Trouin are laid up at Alexandria; the Lamotte-Piquet is in the Far East; the Emile

Bertin and Jeanne d'Arc are at Martinique and Guadeloupe, respectively; at least four are believed to be at Toulon; and the remaining six are probably at Casablanca and Dakar.

DESTROYERS.

Losses so far as can be ascertained include the Mogador, L'Audacieux, Maillé-Brézé, Bison, Chacal, Jaguar, L'Adroit, La Railleuse, Foudroyant, Bourrasque, Ouragan, Siroco and possibly three or four more. Two, the Maillé-Brézé and La Railleuse, were destroyed as the result of internal explosions, recalling the case of the cruiser La Tour d'Auvergne last year, as well as certain mishaps of the Great War.

Little is known about the destroyers that were under construction, but it is suspected that most of them no longer have any existence.

SUBMARINES.

The submarines Ajax, Persée, Achille, Agosta, Ouessant, Poncelet, Sfax, Narval, and Doris are known to have been lost, and a number of others which were under construction were deliberately destroyed to prevent their falling into the hands of the enemy. It is probable, therefore, that the four submarine minelayers Emeraude, Agate, Corail, and Escarboucle, which were to have been built at Toulon, are the only underwater craft still in hand.

MISCELLANEOUS.

Other French war losses comprise the sloops Rigault de Genouilly and Bougainville, the submarine chasers 6 and 7, the oilers Rhone and Le Niger, and the auxiliaries Barsac and Poulmic.

Ships which are known to be operating with the Free French Forces, in addition to the battleships Courbet and Paris referred to above, include the destroyer Le Triomphant, torpedo boat La Melpoméne, submarines Surcouf and Rubis, minesweepers Chevreuil, Commandant Dominé, and Commandant Duboc, surveying vessel President Theodore Tissier, and training schooners La Belle Poule and L'Etoile.

ITALY.

Now that its fighting value has been put to the stern test of war, the reputation of the Royal Italian Navy has received a blow from which it will not soon recover. One of the immediate effects of the disasters which have befallen it was a drastic series of changes in the principal appointments. Admiral Arturo Riccardi has relieved Admiral Domenico Cavagnari as Chief of the Naval Staff and Under Secretary of the Ministry of Marine; Admiral Inigo Campioni has replaced Vice-Admiral Odoardo Somigli as Deputy Chief of the Naval Staff; and Vice-Admiral Angelo Iachino, a former Naval

Attaché in London, has succeeded Vice-Admiral Guido Bacci as Commander-in-Chief of the Fleet.

BATTLESHIPS.

As a result of the successful torpedo attack carried out by naval aircraft at Taranto on November 11, 1940, the battleship Conte di Cavour, of 23,622 tons, is lying abandoned in the outer harbour of that port. From photographs it could be seen that her stern was entirely submerged and the starboard side completely awash. No attempt appears to have been made to salve her, and it is clear that for practical purposes she may be written off the effective list.

The Littorio, of which the Italians were so proud when it was completed a year ago, is still under salvage in the same harbour. From the amount of oil fuel that had escaped from her hull it is clear that the damage done to her was severe.

Another battleship of 23,622 tons, either the Andrea Doria or Caio Duilio, was also damaged and has since been undergoing extensive repairs in dry dock. It is possible that a fourth battleship was injured on the same occasion, since only two were present at the action with Sir James Somerville's force off Cagliari on November 27, when a second battleship of the 35,000-ton " Littorio " class was damaged.

It should be borne in mind that two more 35,000-ton battleships are completing, the Impero at Genoa and the Roma at Trieste. Whether the former received any damage from the bombardment of Genoa on February 9 is not known.

CRUISERS.

Two 10,000-ton cruisers, the Bolzano and one of the " Trento " type, were damaged in the inner harbour of Taranto by the air torpedo attack of November 11. Three other cruisers of 10,000 tons, including the Fiume, besides one of lighter type, received hits in the Cagliari action. The Bartolomeo Colleoni, of 5,069 tons, was sunk by the gunfire of H.M.A.S. Sydney to the north-west of Crete on July 19, and one of her sister ships was torpedoed by a British submarine in March.

Nothing is known of the progress made with the twelve small fast cruisers of the " Regolo " class, laid down in 1939. It is doubtful whether the two larger units of the " Ciano " type have been begun.

DESTROYERS AND TORPEDO BOATS.

At least a dozen destroyers and seagoing torpedo boats are known to have been sunk since hostilities began, including the Artigliere, Espero, Zeffiro, Francesco Nullo, and Palestro. Several motor torpedo boats are also believed to have been lost, these little craft having failed to come up to the expectations of those enthusiasts who some time ago extolled them as " sea sleds."

SUBMARINES.

Nor has the Italian submarine force achieved anything remarkable. On the contrary, one unit, the Galileo Galilei, has achieved the unenviable distinction of surrendering herself to a trawler after a short conflict in which she was decidedly worsted.

No official figures have been published of the total number of Italian submarines destroyed in the past nine months, but a conservative estimate would put it at not less than thirty.

MISCELLANEOUS.

Sundry auxiliary vessels appear to have been sunk, including the ex-cruiser San Giorgio at Tobruk. Classed as a gunnery training ship, she was beached after being heavily bombed in the first week of the war, and thereafter formed part of the defences of the port. A minesweeper and two other warships described unofficially as destroyers were also sunk in the harbour. A depot ship was destroyed at Bomba in August last.

GERMANY.

Unlike her ally, Germany does not appear to have made any changes in the High Command of her Navy; and Grossadmiral Raeder continues at the head of the Admiralty in Berlin. Yet, apart from the destruction done by submarines and surface raiders, the German Fleet has accomplished singularly little at sea.

BATTLESHIPS.

Of the four 35,000-ton battleships under construction, it is possible that the Bismarck is now in service, while the Tirpitz should be ready by the summer. A Norwegian claim to have sunk the 26,000-ton Gneisenau in the narrow part of Oslo Fjord in April lacks confirmation, and it is probably merely another version of the Blücher's loss. But her sister ship, the Scharnhorst, was bombed by naval aircraft and torpedoed by H.M.S. Clyde in Norwegian water. She was subsequently hit by three bombs, but contrived to reach Kiel, where she was again bombed while in dry dock.

CRUISERS.

Exactly how many cruisers Germany has in service is uncertain. She has lost the 10,000-ton Blücher, which drifted on to a Norwegian minefield after being disabled in action with the forts guarding the approaches to Oslo, and it is not known positively how many new ships of this class have passed into service. Probably the Prinz Eugen has been delivered, and the Seydlitz may also be ready.

A report that the fifth 10,000-ton cruiser of the "Hipper" class, which was originally named Lützow, has been sold to Russia cannot be confirmed.

Not until the end of the war is it likely to be known whether the German warships torpedoed by H.M.S. Salmon and H.M.S. Ursula in December, 1939, were actually sunk; nor can their identities be positively established. In the meantime it is always possible that the Leipzig, attacked by the Salmon, and the Köln, supposed to be the ship hit by the Ursula, may both be total losses. A suggestion comes from America that the gunnery training ship Brummer may have been mistaken at a distance for the Köln, but of this there is no evidence.

If she has not been sunk, the Köln is at any rate the sole survivor of her class, for the Karlsrühe was torpedoed off Kristiansund on April 9 by H.M.S. Truant, her loss being admitted by the enemy; and the Königsberg was sunk by a most effective dive-bombing attack by British naval aircraft of the " Skua " type at Bergen on the same date.

There is no news of the four new 6-in. gun cruisers that have been in hand for some time past, but it is possible that two of them are finished.

DESTROYERS AND TORPEDO BOATS.

Of the 22 destroyers with which Germany entered the war, two were officially admitted to have been lost on unstated dates. These were the Leberecht Maass and Max Schultz. It is possible that this may be related to the Polish claim to have sunk two such ships during the attack on Gdynia at the beginning of September, 1939.

In the first battle of Narvik the British force under the gallant Captain Warburton-Lee, V.C., accounted for two more, the Anton Schmitt and Wilhelm Heidkamp; while in the second action three days later the remaining nine units of the German flotilla, the Hans Lüdemann, Hermann Künne, Diether von Roeder, Erich Giese, Erich Koellner, Bruno Heinemann, Bernd von Arnim, Georg Thiele, and Wolfgang Zenker were annihilated. Thus the German Navy lost exactly 50 per cent. of its effective destroyer strength in seven months.

Since that date the majority, if not all, of the seventeen destroyers that were in hand at the start of the war have probably been commissioned, so that unless other destroyer losses have been concealed there may be as many as 28 in service by now.

Twenty-four seagoing torpedo boats, of which the twelve newest were of 600 tons and the remainder of 800 tons, were available when hostilities began; but of these the Albatros is believed to have been sunk by the Norwegian minelayer Olav Tryggvason in April, and another was torpedoed by H.M.S. Swordfish off the French coast in the following October. Eighteen more which were under construction have doubtless been delivered, so the total may now be 40.

Motor torpedo boats (*schnellboote*), of which over 50 were built or building at the outbreak of war, are believed to have suffered ten or twelve casualties, but it may be assumed that further tonnage has been added since.

SUBMARINES.

To give an estimate of the number of U-boats destroyed without access to the official records of both combatants is a hopeless task, but it is probable that the total lost is fully equal to the number in service when war began, if indeed it does not exceed it.

SOVIET UNION.

From time to time official boasts of the growing strength of the Red Fleet continue to be made, usually suggesting that new ships are being delivered on an annually ascending scale. But there is no evidence that the traditionally slow pace of construction in Russian shipyards has in fact been accelerated to any appreciable extent.

It is believed that the ships of the Estonian and Latvian Navies, with the Lithuanian patrol vessel Prezidentos Smetona, have been absorbed in the Soviet Navy.

BATTLESHIPS.

If the 35,000-ton battleship Tretii International was indeed laid down at the Orjonikidze Shipyard, Leningrad, in July, 1939, as reported, the development of the war since that date must have held up her progress to a serious extent. Most of the material for her construction would necessarily have to be imported, and in present circumstances no country capable of supplying it is likely to have any to spare. This observation applies still more forcibly to the second and third ships of this type which are projected or on order.

AIRCRAFT CARRIERS AND CRUISERS.

Little fresh information is to hand concerning the aircraft carriers and cruisers that were under construction. Difficulty in obtaining all the materials required may be holding up the completion of these ships also.

TORPEDO CRAFT.

According to the latest accounts, the total number of destroyers of the 1,800-ton " Stremitelni " type is not less than 36, of which the names of 27 have so far been reported.

There appear to have been 20 torpedo boats of the original " Shtorm " class, of which one, the Purga, was wrecked in the White Sea in 1938. A number of others of a slightly modified design are known to be in hand, six names having so far been recorded.

SUBMARINES.

Including those under construction, there are suspected to be at least 200 submarines on the Soviet Navy list, though fully 25 per cent. of the total are believed to be coastal craft of about 200 tons.

SPAIN.

Official advices from Madrid disclose that the ancient battleship Jaime Primero has been removed from the effective list, as foreshadowed in " Brassey " for 1940. Other vessels discarded include the four obsolescent destroyers purchased from Italy during the Civil War; all but six of the old 177-ton torpedo boats, four of the survivors having been refitted as minelayers; the gunboats Lauria and Laya; and sundry less important craft. The torpedoed destroyer Churruca has been repaired and restored to service.

The minelayers Eolo and Triton have both been launched, the former in 1939 and the latter in 1940, and should have been completed by this time. Construction of the destroyers Alava and Liniers and of the submarines D1, D2, and D3, suspended during the civil conflict, has now been resumed. The 770-ton surveying vessel Artabro is being reconstructed for colonial service. Two small oilers, reported to be of 500 tons deadweight, were launched at Santander in 1939.

OTHER EUROPEAN COUNTRIES.

DENMARK.

No information has been received concerning the Royal Danish Navy since the invasion of April, 1940, beyond the fact that, in direct contravention of an undertaking given to the Danish Government, ten torpedo boats have been appropriated by the German Navy for training service in the Baltic. The vessels in question are understood to be the Glenten, Högen, Örnen, Dragen, Hvalen, Laxen, Havkatten, Saelen, Makrelen, and Nordkaperen.

FINLAND.

It appears that the only ship which the Finnish Navy lost during the conflict with Russia was the Presidential yacht Aura. Both the small minelayers under construction were launched in May, 1940, the names reported to have been given to them being Vakava and Klercker.

GREECE.

On August 15, 1940, the 38-year-old minelayer Helle, of 2,083 tons, was treacherously torpedoed and sunk while lying at anchor off the island of Tinos. Investigation of the fragments of the torpedo recovered has proved that it came from an Italian submarine. In committing this wanton crime against a nation for which she had recently professed friendship, the Italians gave plain warning of what was to follow, and thus gave the Greeks valuable time in which to prepare.

In replacement of the Helle the Royal Hellenic Navy has since acquired a damaged Italian destroyer, which was found abandoned in the harbour of Santi Quaranta when that port was occupied.

NETHERLANDS.

Though the construction of three battleships of 27,000 tons was authorised in April, 1940, the German invasion began before the orders had been placed. Hulls of the cruisers Eendracht and Zeven Provincien, laid down at Rotterdam in 1939, were destroyed before that port passed completely under enemy control. A similar fate befell the destroyers Gerard Callenburgh, Tjerk Hiddes, and Philips van Almonde, submarines O.11, O.12, O.25, O.26, and O.27, three gunboats of 1,268 tons, and a number of minesweepers, submarine chasers, motor torpedo boats, etc.

Losses sustained in resisting the invaders included the destroyer Van Galen, the sloop Johan Maurits van Nassau, the minelayer Hydra, gunboats Brinio and Friso, and minesweepers Abraham van der Hulst and Pieter Florisz. Two submarines, the numbers of which have not been announced, were reported missing in December, 1940, and January, 1941, respectively. Otherwise, the bulk of the Royal Netherlands Navy is operating with Allied forces. Its headquarters, under Vice-Admiral J. Th. Furstner, are now established in London.

NORWAY.

In the surprise of the German attack, the Royal Norwegian Navy lost the coast defence ships Eidsvold and Norge, the torpedo boats Aeger, Garm, Stegg, Sild, Sael, Grib, Jo, Ravn, Brand, and Storm, the minelayer Froya, the minesweeper Rauma, and the fishery protection vessels Senja and Michael Sars.

With the exception of certain units which contrived to extricate themselves and join the British forces, the majority of the other ships of the Norwegian Fleet fell into enemy hands. One of them, the minelayer Olav Tryggvason, is reported to have been renamed Albatros by the Germans.

Norwegian naval forces operating with the allies are under the command of Rear-Admiral H. E. Diesen, with headquarters in London.

POLAND.

The destroyer Grom was sunk in action with enemy aircraft off the Norwegian coast in May, 1940, and the submarine Orzel was reported missing a month later. She has since been replaced by a new submarine built in this country, the Sokol.

The Polish Naval Commander-in-Chief, Vice-Admiral J. Swirski, was recently advanced to that rank from Rear-Admiral.

ROUMANIA.

Three motor torpedo boats, built in England in 1939, were duly delivered to the Roumanian Government.

The Naval Dockyard at Galatz is reported to have been taken over by the Germans.

SWEDEN.

Additional contracts placed last year include two destroyers, the Norrkoping and Gavle; 12 minesweepers, the Bredskär, Bremön, Grönskär, Holmön, Koster, Kullen, Ramskär, Sandön, Ulvön, Ven, Vinga, and Örskär, all of the "Arholma" type; and 24 smaller minesweepers. Work on these vessels is being pushed forward as rapidly as possible, and most if not all of them have already been launched. Two cruisers are to be ordered this year, together with additional submarine tonnage.

The Svenska Lloyd liner Patricia has been purchased for use as a depot ship. From the Royal Italian Navy have been acquired two destroyers, the Psilander (*ex*-Giovanni Nicotera) and Puke (*ex*-Bettino Ricasoli); two torpedo boats, the Remus (*ex*-Astore) and Romulus (*ex*-Spica); and four motor torpedo boats, T11, 12, 13, and 14.

YUGOSLAVIA.

The destroyer Ljubljana, wrecked in the harbour of Split on January 24, 1940, has since been salved and is to be refitted.

SOUTH AMERICAN COUNTRIES.

ARGENTINA.

The ex-training ship Presidente Sarmiento, built at Birkenhead in 1898, is being refitted for duty as the Presidential yacht.

BRAZIL.

In place of the six destroyers building in England, which were taken over by the Admiralty on the outbreak of war, the Brazilian Navy has in hand at Rio six vessels of similar design, to be named Acre, Ajuricaba, Amazonas, Apa, Araguary, and Araguaya.

CHILE.

A surveying vessel, the Vidal Gormaz, has been purchased in England and has since arrived in Chilean waters. She was formerly a steam yacht. The transport Angamos has been laid down in a Danish yard, but when her delivery will be effected is a matter of considerable uncertainty.

CUBA.

A new programme of construction, to include a 4,000-ton cruiser, four 2,000-ton sloops, four 1,000-ton sloops, six gunboats, and ten motor launches, is under discussion. With all United States shipyards full of Government work, it is not easy to see how these ships are to be laid down for some time to come.

PERU.

The torpedo boat Teniente Rodriguez, the depot ship Lima, and the river gunboat Cahuapanas have been scrapped.

ASIA.

CHINA.

Nine warships which had fallen into Japanese hands are reported to have been taken over by the Wang Ching-wei Government. These are believed to include the Ning Hai, Ping Hai, Yat Sen, Hai Ching (*ex*-Yung Chi), Ming Sen, and Kiang Chen.

THAILAND.

One of the two 4,200-ton cruisers building in Italy is said to have been launched last December. According to an official statement from Vichy, the coast defence ships Ayuthia and Dhonburi, together with three of the Italian-built torpedo boats of the Royal Thai Navy, were destroyed in action last year with the French cruiser Lamotte-Picquet, supported by the sloops Admiral Charner and Dumont-d'Urville and the patrol vessels Marne and Tahure.

FRANCIS MCMURTRIE.

CHAPTER III.

THE ENEMY'S WAR ON SHIPPING.

GERMANY's dramatic military triumphs on the Continent of Europe during the early months of the first year of the war more than neutralised the effects of her attack on shipping, owing to the amount of neutral tonnage she forced into British ports and placed at our disposal; and then, at the end of last summer, a crisis developed owing to the intensification of the enemy's attack.

When the German armies overran Denmark, Norway, Holland, and Belgium, they drove a great part of the merchant fleets of those countries into the hospitable ports of this country; when France collapsed in June, more tonnage became available for our use; and Italy's invasion of Greece in October converted that country, with 1,780,000 tons of shipping, from a friendly neutral into another ally of this country.

By the end of twelve months (September, 1939, to September, 1940) the Ministry of Shipping, London, was in control, in spite of the losses due to enemy action and marine casualties, of a greater volume of shipping than it had at its command at the beginning of the war. It was the largest fleet which had ever been under one management.

The second and disturbing phase of the struggle was traceable to the defeat of France, with the consequent loss of the aid of most of the units of her fleet in hunting U-boats and sweeping mines, and to the seizure by the Germans, as bases for operations, of the chief Continental ports in the North Sea, the English Channel, and the Atlantic, leading to an intensification of the war on merchant shipping. Mr. Arthur Greenwood, Minister without Portfolio, stated in the House of Commons on November 27 that " the position was much the same as in April, 1917," when the critical shipping situation caused the greatest anxiety. He exaggerated the gravity of the situation, but his confession was not unwelcome since it indicated that the Government had, at length, awakened to the need for increased merchant shipbuilding.

Such, in brief summary, was the course of events in the past year.

I.

The Ministers who were in office in the early period of the war regarded too complacently the enemy's challenge to our sea communications. They claimed that we had 21,000,000 tons of shipping under the Red Ensign, whereas the volume of seagoing tonnage which was available for the carriage of food and raw materials was little more than half that figure. The attack on shipping was regarded as of secondary importance under the mistaken supposition that there were ships enough and to spare whatever might be the success of the enemy in sinking tonnage. The withdrawal of the B.E.F. from France, with the loss of all its equipment and the subsequent air-raids on this country, which made the supply of anti-aircraft equipment an urgent matter, tended to divert still more the national attention from the sea affair. In the allocation of the labour and material emphasis was laid on the replacement of the B.E.F.'s equipment, the needs of the rapidly growing Army, the fast expanding Air Force, and the provision of anti-aircraft guns, as though any gain of strength on land or in the air could compensate for weakness at sea.

The outlook down to the end of the summer caused little or no anxiety in official circles.* An explanation of the position was given on August 26 by the Minister of Shipping (Mr. Ronald Cross, M.P.). He recalled that the Prime Minister (Mr. Winston Churchill) had stated in the House of Commons in the previous week that " the merchant tonnage under the British flag is larger than when the war began." That was, he confirmed, the fact :—

> " Take the losses. The figure I shall give you is not limited to sinkings and captures by the enemy, but includes all losses suffered by our merchant ships since the beginning of the war, on whatever service employed, and by the many hazards of the sea, which have to be faced by all merchant ships in peace and war alike.
>
> " Up to the middle of August we lost just under 1,900,000 gross tons of shipping. It is true that this figure does not include ships which have been seriously damaged but which have been repaired and have returned, or will return to service. Many ships have in fact been brought back to service which in ordinary times would be regarded as beyond repair. For this we have to thank the skill and energy of our ship repairers, and our thanks are also due to them for the speed at which they have worked so as to get vessels back into the national service at the earliest possible moment."

Mr. Cross recalled that such a presentation of the case was not in accordance with the world-wide propaganda of the enemy. The Germans had declared that they were sinking ships so quickly and demolishing the ports so thoroughly by bombing, that our oversea trade was drying up. " Those of you who live in seaports will know," Mr. Cross added, " what to believe of this, since you see our ships and those of our Allies constantly arriving loaded, departing with cargoes, and coming back for more ; while, if there are any German or Italian ships in your ports, they have been there an extremely long time."

Then the Minister of Shipping turned to the other side of the account—the additions to the shipping on the Register of the United Kingdom. By building, by purchase, and by capture, we had gained just over 2,000,000 gross tons of shipping. Included in these 2,000,000 tons were ships of which we had taken temporary possession, partly for the purpose of our own use and partly so as to prevent their falling into the hands of the enemy. "The net result is that we embark upon the second year of war with shipping resources under the British flag undiminished."

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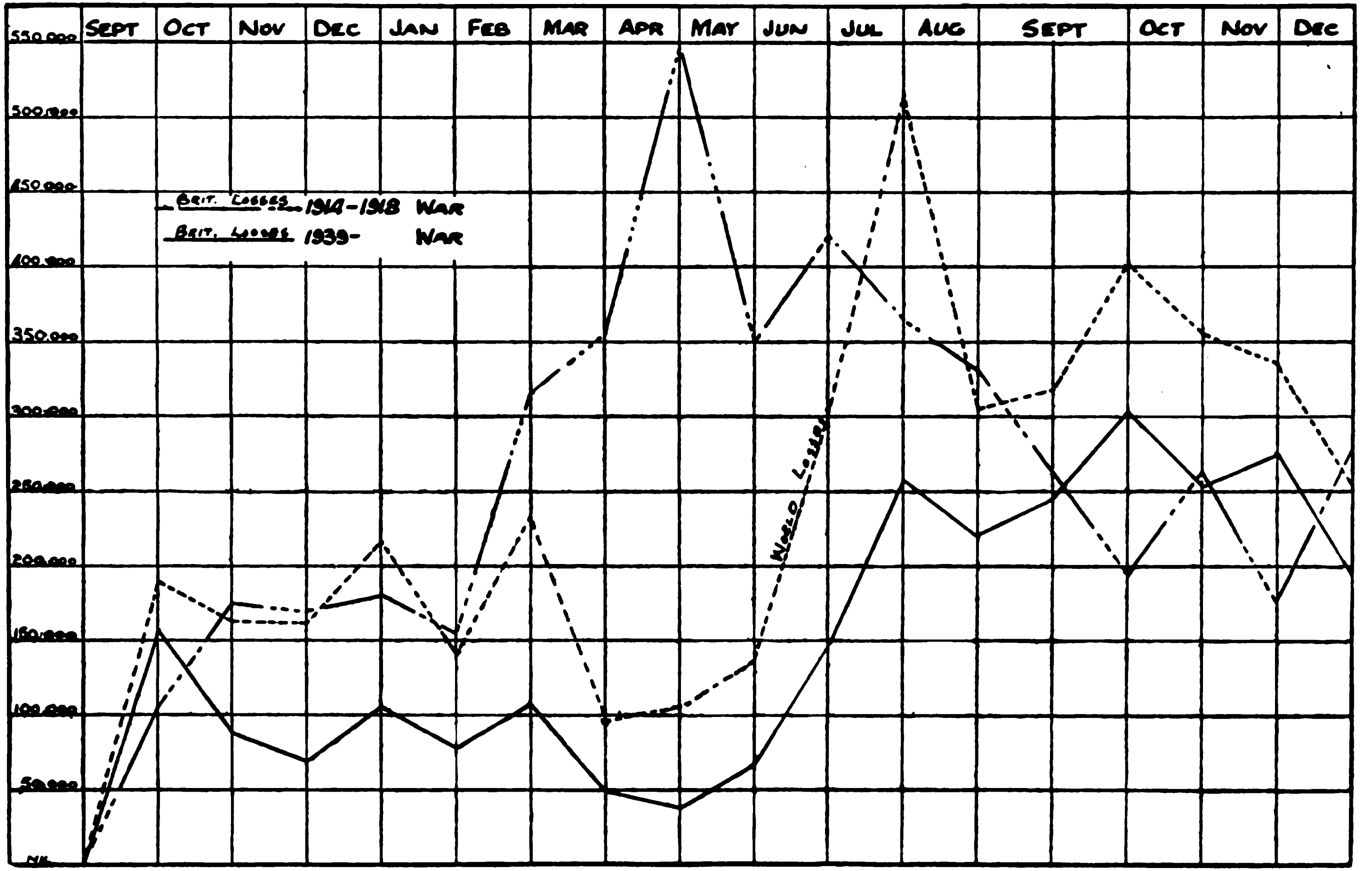
* In answer to a question in the House of Commons, the First Lord of the Admiralty stated that the number of merchant ships of all tonnages (including fishing vessels) lost by enemy action during the first 12 months of the war was : British, 406 vessels of 1,611,842 gross tons ; Allied, 103 vessels of 474,816 gross tons, and Neutral, 253 vessels of 769,212 gross tons, a total of 762 ships of 2,855,870 gross tons.

Mr. Ronald Cross did not attempt to conceal the fact that the maritime situation had become more difficult since France collapsed, and the work to be done by the shipping industry had been much increased. Many nearby sources of supply in Europe had been overrun by the enemy; cargoes from the East used to pass through the Mediterranean before Italy came into the war. The American continent had become this country's nearest source of supply for many commodities which formerly came from Europe, and cargoes from the East had, as a rule, to be carried round the Cape. The average round voyage of a ship was, consequently, longer than it had been; in other words, each ship was bringing in fewer cargoes in a year.

But in spite of this increased pressure on the resources of the Ministry, the position was consolatory. Against these handicaps had to be set the gain of Allied and neutral shipping. A part of the shipping of our Allies was caught by the enemy, but the quantity of their shipping which remained free amounted to between 6 and 7 million tons gross. Some of it was chartered to us before the countries in question were overrun. But a very substantial part of this tonnage was in Allied service, and we had in addition to that, 750,000 gross tons of neutral shipping on time charter.

The change in the maritime position as a result of the acquisition of so much foreign tonnage reacted on the work of the Ministry of Shipping, which had been formed as recently as the opening of the war—a new organisation. Within a little over a year of its establishment, it had become responsible for the greatest fleet which had ever been under a single authority. It included, in addition to British vessels, 90 per cent. of the merchant fleet of Norway, about the same proportion of the shipping of Greece, as well as vessels under the French, Polish, Dutch, Belgian, Estonian, Swedish, Danish, Panamanian, Latvian, Hungarian, Egyptian, and Roumanian flags, besides some vessels of Yugo-Slavia. In the war of 1914–18, it had been the task of the Ministry of that time to tempt neutral shipowners to charter their vessels to this country or otherwise to place them at its service at much higher rates of freight than were conceded to British owners. These foreign shipowners were thus able to accumulate large reserves which were afterwards invested in new tonnage. Now the Ministry was dealing not with neutrals, but with Allies. As a matter of national policy, all the vessels, it was apparent, should be at the service of the common cause. The tonnage of Norway and, later, that of Greece, were placed under the supreme control of national bodies in London. It was with these bodies that the Ministry of Shipping arranged terms of hire. In these circumstances, the disparity between British and neutral rates was not so great as in the former war, thus modifying a grievance of which much complaint had been made in British shipping circles. Considering the variety of the nationalities concerned, the plans of the Ministry worked with remarkable smoothness.



British merchant shipping losses from enemy action since the outbreak of the war* compared with the worst period of the last war—1916-17. 1940 figures include merchant shipping lost in coastal operations in France as well as that lost by direct enemy attack. The graph also shows the world losses from enemy action from September 1939 to December 1940*

* Four-weekly figures.

II.

The policy of the Ministry was that the cargoes in British ships, which were carried mainly on Government account, and in particular for the Ministries of Food and Supply, should be borne at net cost. The Department made it plain that it was taking every precaution against any possibility of a charge of profiteering, though, in fact, the 100 per cent. Excess Profits Duty would have been a complete answer to any such criticism. It paid owners their out-of-pocket expenses, with an addition of 5 per cent. for depreciation and 5 per cent. for profit. Owing to the rapidity with which costs of operation increased, the terms of the agreements with the Ministry lagged behind the disbursements, so that, in fact, the profit in most cases was less than 5 per cent. during the year 1940. Moreover, owing to the higher cost of materials and the increase in the wages of shipyard workers and engineers, the provision for depreciation, it soon became apparent, would not be adequate for the replacement of tonnage lost by enemy action or marine casualties. Lord Essendon discussed this problem in his address at the annual meeting of Furness Withy & Co., on August 20. After describing the losses which had been sustained at sea, he continued :—

> " These vessels will need to be replaced in due course in order to maintain the services normally operated by us. In addition other vessels will need to be built to replace normal wastage, and it is clear that for many years to come building costs will be considerably higher than the original cost of these various vessels, apart altogether from the replacement by new tonnage for old.
>
> " Provision must be made for these increased costs, otherwise our fleets will automatically dwindle in number, in earning power, and in ability to perform the services which we are accustomed to maintain. We have, as you are aware, provided regularly for normal depreciation, but the increased costs to which I have referred are certain to be in excess of anything that can be taken care of by normal depreciation, and consequently your directors are proposing to place £100,000 out of the past year's profits to the credit of a replacement account for this ultimate purpose.
>
> " It is desirable to emphasise—and I am certain I voice the view of the great majority of shipowners—that the shipping industry has no thought of making profits from the war. Our thoughts are concentrated on two main objects, the first being to contribute the maximum effort of mind and material to the successful prosecution of the war, and the second to do what lies in our power to protect the future of our industry."

The problem of tonnage replacement was also discussed at the meetings of the Peninsular and Oriental Steam Navigation Company, and of the Orient Steam Navigation Company. At the former, Sir William Crawford Currie, the chairman, spoke of the difficulty of obtaining new tonnage for replacement at anything like the prices paid when the ships which had been lost or damaged were originally built. With a view to obtaining a line on prices his company had, he said, made inquiries with regard to the cost of building a sister ship to one ordered by a subsidiary company in April, 1939. The figures submitted showed an increase of 37 per cent. That indicated, he said, that a 5 per cent. depreciation charge on original cost of ships was itself insufficient to take care of a future replacement programme. At the Orient Line meeting on December 20, two days later, Mr. I. C. Geddes, the chairman of that company, dealt with the same subject and gave some interesting figures. A ship, he said, to accommodate 1,000 people, with the attendant crew, cost in the first decade of the century £350,000. After the last war it cost £1,000,000, and the ship of to-morrow might cost £1,750,000. The annual charge for interest and depreciation might be assumed at 10 per cent., and the ship's expenses for the £1,000,000 ship were twice those for the £350,000 ship, and would increase with the ship of to-morrow. The cumulative effect upon the revenue that must be secured in order to avoid a positive loss was very formidable.

The President of the Chamber of Shipping (Sir Philip Haldin) summed up the views of the industry in a New Year's message in which he expressed the fear that plans of nationalisation were being entertained by the Ministry of Shipping. Shipowners, he pointed out, had lost hundreds of thousands of tons of shipping; they were being paid millions of pounds insurance money for those losses, but so far they had not been allowed, with these funds, to purchase ships which were being delivered daily to the Government.

> " As the Government have to raise fresh money by means of taxation or War Loan to pay for these vessels, their action seems so queer that it engenders grave suspicion, which is further enhanced by a curious inconsistency in their action of forming an insurance pool upon certain terms for replacement of tonnage, well-known to the industry, with the object of preventing shipowners going out of business, and yet they are preventing shipowners continuing in business by this strange refusal to allow them to purchase these new ships. What can it all really mean? Can it mean that the Government is being influenced to retain these vessels by those members of the Ministry of Shipping who are dazzled by the ease with which ships can be employed, because they can obtain whatever rate of freight they care to ask for in war-time, without having to undergo the keen competition of peace-time, and are thus becoming so enamoured with shipowning that the perilous and insane idea of nationalisation may be creeping into its future programme ? "

The policy of the Ministry of Shipping was explained by Mr. Ronald Cross in a White Paper. He emphasised his realisation of the " necessity of maintaining the British Mercantile Marine in adequate strength and in a position of full competitive efficiency," but, at the same time, declared that the Government were unable to agree to include in the rates of remuneration any allowance towards providing for future replacement.

III.

Tribute should be paid to the Ministry of Shipping and the Admiralty for the attention which those departments have devoted to the comfort and safety of the officers and men of the merchant service. As during the war of 1914–18, the personnel of the Merchant Navy, serving in ships which were not built for the violence of war, had been forced by the enemy's disregard of the laws of God and man into the forefront of the struggle. In the first twelve months of the war, although 15,635 officers and men were saved from ships sunk by the enemy, 3,327 lost their lives, 1,100 being made prisoners. As the Minister of Shipping reminded the nation, " the courage of our merchant seamen is always there when the ugly moment comes."

> " Ships would amount to little if it were not for the skill and spirit of the men who bring them through mine infested seas, liable at any moment to attack by air or submarine. . . . The Merchant Fleet is the work-a-day sister of the famous British

A small convoy ; taken from one of the escort.

(Associated Press photograph.)

CALIFORNIA

Navy, but the merchant seaman is not trained in fighting. He is a civilian carrying on his peace-time job. But he is a civilian who without a moment's notice may find himself involved in risks of war just as big as those which face the trained fighting men, and he faces them with just as much fortitude. Many of the men serving in the Merchant Fleet are above the age at which men are being called up for military service. They could stay if they chose safety on shore. But they do not. Their pride and courage take them again and again to sea. It is the courage of free men fighting for freedom, the most enduring courage of all. That is what gives life and spirit to our Merchant Navy, that is why we have faith that they can and will see this thing through to the end. That, and a certainty in the inner-beings of us all that we cannot be beaten, and that we shall finish up on top."

In consciousness of the risks these seamen have to run owing to the development of piratical methods, the Ministry overhauled during 1940 all the regulations regarding equipment for life saving such as improved rafts, automatic electric lights instead of flares for use in lifeboats, better life belts, more ladders to facilitate the taking to the .boats for which additional blankets were needed, a regulation was also made requiring all ships of over 2,000 tons gross to carry a motor lifeboat and smaller ones to have an outboard motor. In July the Ministry issued new regulations to apply to all merchant ships in the danger areas around Britain :—

(1) " Every ship is to have a readily available and efficient system of alternative lighting, consisting of electric hand-lamps or torches, for use in case of failure of the ship's lighting installation.

(2) " Each member of the crew is to be supplied with an approved life-saving waistcoat or alternative appliance suitable for wearing on the body whilst employed on deck or in other duties about the ship, and officers and supervising deck ratings are to be provided with a jack-knife fitted with tin-opener.

(3) " Lifeboats must where practicable be carried at the davits in the outboard position.

(4) " Lifeboats must be provided with additional equipment and some ships must carry additional lifebuoys, parts of which must be fitted with a self-igniting light and part with a line.

(5) " Weekly drills must be held for exercising the crew in the use of the life-saving appliances and procedure for abandoning ship. One such drill must be held before or on leaving port, and any passengers carried are to be instructed immediately on coming on board in the procedure to be observed in the event of an emergency."

Throughout the year the two departments concerned had all the arrangements for preserving life under continual review, and, apart from the humane aspect of this work, the lives of many seamen were saved who, once ashore, were anxious, such was their spirit, to get afloat again in spite of the fury of the enemy.

The Government also decided to carry into effect the Geneva recommendations for the welfare of seamen in ports. A Welfare Board was established in November and a Central Consultative Committee was formed at meetings held under the chairmanship of the Minister of Labour—Mr. Ernest Bevin. The purpose of the Government was to ensure that the shore conditions of the merchant seamen should be as far as possible equal to those provided by the State for factory workers, in reference to health and social amenities and facilities. Port Welfare Committees have been set up in the ports and are representative of the interests concerned in the welfare of seamen of all countries. Official recognition has been given to the work of the voluntary mission societies, and it has been made clear that the Government desires that this work shall be continued and encouraged to the fullest extent. Many factors affecting the seamen which are beyond the scope of the mission societies and which can only be dealt with by the national or local authorities come within the range of the Board's activities.

IV.

The first year of the war on shipping, as has been stated, closed not unfavourably to us. The plans which the Admiralty had made, in co-operation with shipowners, for the defensive armament of merchant ships and for the introduction of the convoy system had worked well and, until France capitulated, the enemy menace had been successfully countered. On the other hand, the Germans had, it was known, suffered heavy losses of U-boats, as well, of course, of their best trained officers and men.

During those twelve months Ministers regarded the position with complacency, which found expression in the allocation of man-power, afloat in merchant ships as well as ashore in the shipyards and engine shops. It was forgotten that the merchant navy had been short of trained personnel, and, particularly, of engineers at the opening of hostilities. The fact was also overlooked that in the long depression the number of men in the shipbuilding industry had shrunk by 125,000 and that, making allowance for the introduction of more labour-saving machinery, the loss of productive power had been considerable. The shipbuilding industry, especially on the engineering side, had not the capacity which it had possessed at the end of the war of 1914–18. But the state of affairs caused little anxiety.

It was assumed that the country had plenty of seamen and ships and shipbuilding facilities. No exceptional efforts were made to train personnel for service ashore or afloat. In the allocation of berths in the shipyards as well as of men and of material, preference was given to the demands of the Admiralty, to which department the building of merchant as well as naval tonnage had been assigned. Sir James Lithgow had been appointed early in the war as Controller of Merchant Shipbuilding and Repairs, with Sir Amos Ayre as Director, both working under the ægis of the Board of Admiralty. It was urged that this arrangement resulted in a smooth adjustment of the rival demands on the industry. And thus it came about that the requirements of merchant shipping were pared down to a minimum, since the Royal Navy, under the influence of political pressure during the years when the country was bemused with hopes resting on the League of Nations, had entered upon the struggle tragically weak in small craft. About 75 per cent. of the shipbuilding capacity of Great Britain and Northern Ireland was allocated to naval work in the early months of the war. What remained of labour and material was devoted to the output of a maximum of 1,250,000 tons of merchant tonnage per annum. That was to be the high peak of the output of merchant tonnage.

The urgent demand for new ships suggested to some critics that the rationalisation of the shipbuilding industry which had been carried out before the war, had been a mistake since, on paper, it had reduced the maximum output from about 3,000,000 tons to approximately 2,000,000 tons. But the fact is that though the building capacity was reduced by about one-third—not by compulsion but by voluntary means—the labour available for the berths and engine shops which remained was inadequate for full productive effort. The country had more plant at its service than could be used, apart from temporary difficulties which were due to shortage of steel. As a result of the rationalisation scheme economies amounting to about £1,000,000 had been effected, and the most efficient yards had been made more efficient by the concentration of work which had formerly been distributed over many less efficient establishments. When this readjustment of capacity to probable demand had been made, the orders from shipowners, British and foreign, were not, indeed, sufficient to provide employment for more than a fraction of the plant. The condition of the industry on the eve of the war became so grave that the Government in March, 1939, submitted to the House of Commons the British Shipping (Assistance) Bill which was intended to stimulate construction. As Sir Amos Ayre has recalled * :—

> " During the whole of the year 1938, less than 300,000 gross tons had been ordered, and only 71,000 tons were ordered in the first three months of 1939. At the time of the announcement of the Government Bill only 600,000 tons were under construction, and had there been no announcement there is no doubt that, by the outbreak of war in September of that year, the total under construction would have fallen to about 300,000 tons, and that including the 85,000 tons of the Queen Elizabeth, and many other vessels in the finishing stages. But for the Government's decision in March, the merchant side of the industry would have been in a very sorry plight in September."

V.

The " total blockade " which was proclaimed by the Germans late in the summer was, of course, bluff. It could not be made effective. It was intended to deceive neutrals, and especially neutral traders. The attempt to stop all traffic in the English Channel, and especially through the Straits of Dover, by long range gunfire from the shores of France, by lightning attacks by E-boats and by surprise aerial attack, was defeated by the courage and resource of the seamen and the protecting men-of-war and aircraft. The convoys converging on the western approaches continued to sail. But by a concentration of all available forces on the western approaches and round the shores of the British Isles, the enemy did succeed in subsequent months in sinking far more tonnage than he had done in the first year of the war. Whereas in the first year the sinkings had been, on the average, only 41,000 tons a week, the average weekly losses after France collapsed rose to :—July, 91,000 tons; August, 82,000; September, 100,000; October, 86,000; November, 89,000, and in December, were 68,000 tons. Even more important than the averages was the gross loss of 4,000,000 tons from the beginning of the war to the end of the year. That would have been much more serious in its influence on the war if it had not been for the amount of neutral tonnage which became available

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* Transactions of the Institution of Naval Architects, 1940.

and the purchases of American ships. In these circumstances attention was devoted to an examination of the counter-measures which had been adopted by the Admiralty and, in particular, to the organisation of the convoys and the speeding up of merchant ship construction.

The Government acted with energy as soon as the crisis at sea owing to the greater success of the enemy became apparent. Measures were taken to lay down additional keels in this country; orders were placed in the United States for 60 cargo carrying ships; negotiations were begun with the United States Maritime Commission for the purchase of more of its older ships (of which it possessed 4,000,000 tons gross of 20 years or more old) in addition to the 100 which had already been purchased, and plans were completed for "fabricating" ships—sections being made on the other side of the Atlantic and then brought to this country for assembling and engining.

Once it was realised that the losses might continue at a high rate until the Admiralty could adjust its offensive-defensive measures to the new situation, the Government acted promptly and with good judgment. The conditions were not, in fact, anything like as serious as Mr. Arthur Greenwood had suggested when he stated that the position was much the same as in April, 1917, when the "intensive campaign" was in progress. The situation, as the Naval Correspondent of *The Times* pointed out, "was serious without exaggerating its seriousness." We began the war in September, 1939, with less tonnage than we had in 1914, but the commitments to Allies proved smaller than they had been in the last war, and the Ministry of Shipping had been able to secure more neutral tonnage and buy more ships from the United States. The crisis of 1917 occurred when the enemy had sunk nearly 5,500,000 tons of shipping, British, Allied, and neutral; little of that tonnage had been replaced, and the reply to the U-boat had still to be discovered. When the enemy began his intensified attack by U-boat, mine, and aeroplane last autumn, all the sinkings in previous months had been made good, and we had a balance to our credit, apart from the fleets under Allied flags which had joined us. We started with something in hand when the "total blockade" began in the autumn of 1940. That was a very different situation from that of the spring of 1917. On the other hand, the requirements of the Navy, Army, and Air Force increased when Greece and the Western Desert became important theatres of military operations. Those commitments, in association with the loss of tonnage which was being sustained at sea, were responsible for the tightening of the rationing system as the year came to an end, thus bringing home to the country the danger which threatened it.

Throughout the months when the tonnage losses at sea were increasing, shipowners, experts in the management of ships, were not satisfied that the Ministry of Shipping was using the available tonnage to the best advantage. The delays in port represented, in their opinion, a serious loss of carrying capacity. Some of those delays were due to war conditions, as they realised, and were unavoidable. But for the rest, they were distressed by the fear that, in a colloquialism, " too many cooks were spoiling the broth." A correspondent of *The Shipping World* * remarked that one of the worst features in the shipping situation which had become apparent when the problems of delay, and therefore, waste of carrying capacity, were investigated was the lack of co-ordination leading to a single control. Among the many authorities who had something to say in the matter of handling ships and cargo in U.K. ports were, he explained, the Ministry of Transport, the Port Emergency Committees, Ministries of Supply, Food, and Mines, the Dock Authorities, Naval Control, Collector of Customs, and " coming somewhere near the bottom of the list," the Ministry of Shipping. The latter, moreover, had a department designated " Shipping in Port," and in each port area there was a Ministry of Shipping Representative (referred to for convenience as M.S.R.s) responsible to the Ministry of Shipping in general and to the Shipping in Port Division in particular. " Truly a formidable list, and with such an array of talent available it seems difficult to believe that any delays should occur. But they do, and serious ones too."

> " In the opinion of many, it was wrong that the docks should have been put under the control of the Ministry of Transport. They should have been controlled by the Ministry of Shipping, and the Transport Ministry's responsibility should have been directed broadly to keeping the docks supplied with wagons and taking the goods away from the dock areas."

The war on shipping in the year 1940 so far as the Government is concerned may be thus summed up—first unwarranted complacency and then undue alarm. But in the conditions which existed as the year 1940 came to its end, the anxiety which Ministers exhibited, if an error, was an error on the right side. It suggested that the Government realised at last that everything depended, in the last analysis, on the maintenance of the essential seapower of an island country, with a sea dependent population of 48,000,000 people, the centre of a maritime Empire. Under the threat of invasion the British Isles have been compared to " a fortress," but it is fortunately a fortress which is in no danger of investment so long as its Navy of supply can maintain the inward flow of cargoes provided by the markets of the world.

ARCHIBALD HURD.

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* The Shipping World, December 25, 1940.

CHAPTER IV.

AIR OPERATIONS AND THE WAR AT SEA.

Air operations during the year under review offered more and clearer examples of sea–air co-operation than ever before. In fact the statement by the Prime Minister, Mr. Winston Churchill, in the closing month of the year on the transfer of the responsibility for directing the operational policy of the Coastal Command of the Royal Air Force from the Air Ministry to the Admiralty summed up, in one sense, the findings of officers and men of both services in a great number of actions. There had been throughout an increasing approximation of sea and air needs especially in the matter of protecting the trade routes. There had been a fuller appreciation of the possibilities when the sea arm and the air arm worked in the closest collaboration.

So the general inference to be made from studying the air actions of the year was that British strategy would call for a much more intimate knitting together of sea and air work and that, while the value of an independent air force, for delivering independent attacks on the enemy and for providing adequate defences against his attacks, was clearly demonstrated, the Empire's need for sea–air collaboration on a huge scale was decisively proved. In the remarkable campaigns of the closing months of the year, in Albania and in the Western Desert, the range and power of close sea–air collaboration were vividly shown.

Besides this larger object lesson, there were many minor lessons. Perhaps the most important tactical event was the development of the technique of torpedo attack from the air. At Taranto on the night of November 11 and 12 this brought the Fleet Air Arm its greatest success. Indeed, the blows struck at the Italian fleet on this occasion with torpedoes dropped from aircraft were so heavy and so well aimed that this action must be considered to have been up to that date among the most notable of all air actions of whatever kind. It was followed by further achievements by torpedo-carrying aircraft which will be dealt with in their place.

The closing months of 1939 had seen repeated attacks by German aircraft on British ships. There had been the raids on the Firth of Forth and the Shetlands. Royal Air Force bombers had frequently attacked units of the German fleet. There had been mine-laying by aircraft. And all the time the Germans had continued to attack as often as possible British and neutral fishing vessels. Aircraft of the Coastal Command had made many attacks on U-boats. In the opening month of 1940 the German air attacks on British shipping were intensified. A number of small merchant vessels were sunk and several attacks were made on lightships. For this work the Germans used mainly their Heinkel 111 bombing aeroplanes. It was on January 10 that the sinking by German raiders of the Oakgrove of 1,985 tons and of two other smaller vessels was announced. They were hit by bombs. Three days later aircraft of the Coastal Command of the Royal Air Force attacked three enemy destroyers off Horns Reef and bombs were seen to burst near them. In seeking to counter the work of British aircraft the Germans used a certain number of Flak ships in the North Sea. They were small vessels equipped with a large number of anti-aircraft guns of varying calibres and in some circumstances they were found to be able to hamper the activities of aircraft.

It was on January 29 that the Germans launched the most ambitious of their air attacks on British shipping up to that date. The attacks were distributed along 400 miles of coast from the mouth of the Tay to Kent and many ships reported attacks by bomb and by machine-gun. In addition two lightships were attacked. On the following day there were further attacks and on this occasion some of the attacked vessels were in convoy. There can be little doubt that the German Command was at this time testing what might be done by air attack on our shipping and seeking to assess what measure of success might be achieved by aircraft working without ships. On our side we were developing means of countering the attacks. It was found that anti-aircraft guns were often a good defence and that low-flying attacks could be dealt with effectively by Lewis gun fire. The essential point emerged that bombing from a height was usually ineffective because of the small area of target presented by the ship being attacked, and because that ship could manœuvre and so throw out any attempts at high altitude precision bombing. The consequence was that, if they were to sink our ships in large numbers the German aeroplanes had to come low. So doing they offered themselves as a good target to a skilful gunner.

January ended with a successful sea–air action against a U-boat. It had just attacked a convoy and had sunk a British ship of 5,026 tons when joint naval action with a Coastal Command flying-boat destroyed it. On February 13 an Admiralty statement was issued saying that the German freighter Wakama of 3,771 tons had been set on fire and sunk when ordered to heave to by an aircraft from a British warship. Details were issued of the part played by the Royal Air Force in locating the Altmark and in escorting the Cossack and other British ships that had taken part in this successful action on their way back to a home port. February closed with a moonlight raid by a German bomber on a British tanker in the North Sea. The captain and mate were wounded by machine-gun fire. In general the month showed no clear pattern of offensive or defensive action, but it confirmed the earlier indication that the Germans were trying to find out how far air action might be relied upon for cutting our trade routes.

March is a month of great importance for in it the first full scale air raiding of the war may be said to have begun and, in addition, the Fleet Air Arm received its first mention in an official communiqué. The opening of the bombing arose from an attack at dusk on March 16 on British warships in Scapa Flow. Fourteen German aircraft were said to have taken part in the raid, though it was subsequently thought that more may have come over. Besides the bombing of the ships, some land targets were hit. The German High Command claimed that four warships had been hit by their bombs, including the Hood, the Repulse, and the Renown. This was denied in London. The response to this raid was made by the Royal Air Force on the 19th when a seven-hour raid was launched on the German base at Hornum, Sylt. Forty-five tons of bombs were dropped and both high-altitude and dive-bombing were used. The raid was conducted by the Bomber Command of the Royal Air Force and it led to a great many attempts on the part of the Germans to conceal the damage done.

It was on March 20 that the Fleet Air Arm came into an official communiqué. On this day a British convoy was attacked by German aircraft, ten Heinkel 111's being observed. Aircraft of the Fleet Air Arm went into action and dispersed the enemy machines. One Heinkel was damaged. Two days later aircraft of the Fleet Air Arm again came into action when they drove off a Heinkel that was attempting to attack a British convoy. On this day also another attack on a lightship was made by a German aircraft and this led to the adoption of floats in places of the ordinary lightships. It is likely that the German airmen, in attacking lightships, were performing part of a considered plan, for the aim of all these attacks on shipping was to make the seas so hazardous that seamen would no longer venture forth upon them.

The appearance of the Fleet Air Arm in the official communiqués gave added interest to the disclosure of some of the work done by H.M. aircraft-carrier Ark Royal. Captain A. J. Power related the details of the bombing attack which gave rise to the German claim that she had been sunk. A bomb landed in the sea 15 feet away from the ship. It was estimated that the Ark Royal had reconnoitred five million square miles of ocean from the Equator almost to the Arctic during her five months of war service.

Search by aircraft carrier was a method which had been well developed during the early stages of the war. Its success led to the aircraft-carriers being among the most hard worked of our ships. But the success of this form of reconnaissance did not dispose of the questions about the ultimate value of the aircraft carrier. The view might still be held that such ocean reconnaissance could be better done by very long range flying-boats of large size, and that the use of shipborne aircraft was merely an intermediate stage which would last only until large flying-boats of sufficient range and load carrying capacity had been developed. The Coastal Command was using many large flying-boats for over-sea reconnaissance.

It was about this time that the Royal Air Force made an attempt to counter the German attacks on British shipping and also to restrict enemy mine-laying activities by more of the "security patrols" over Borkum, Norderney, and Sylt. The method used in

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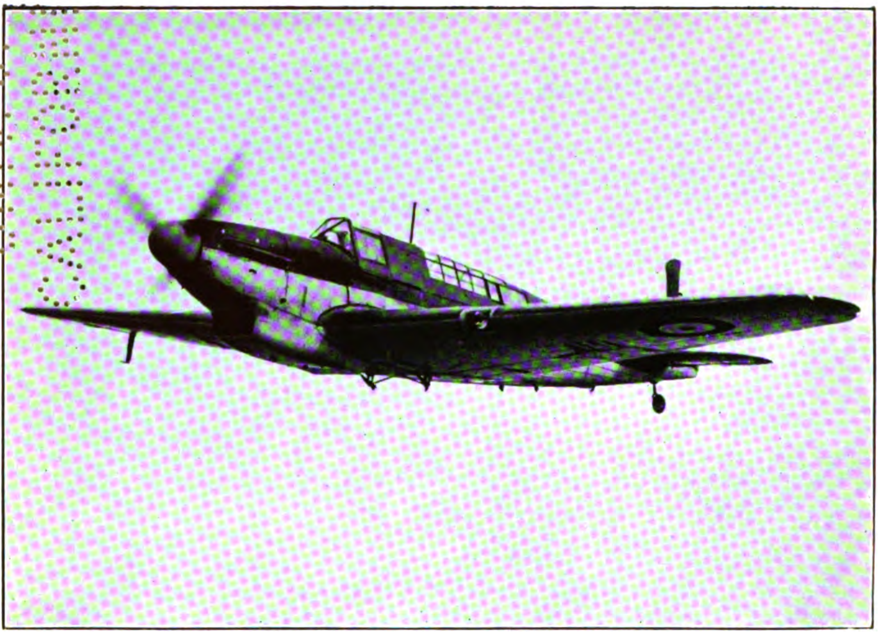

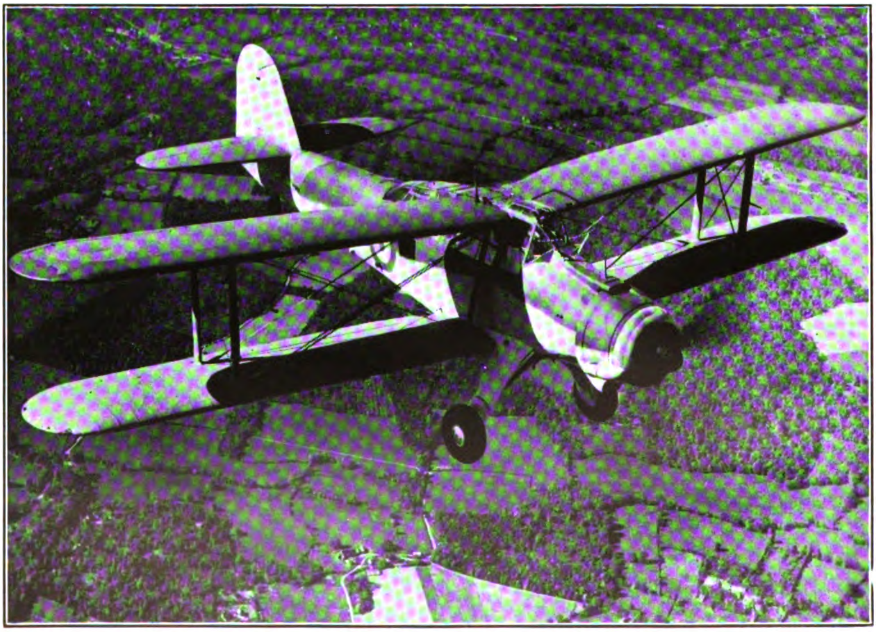

AIRCRAFT OF THE FLEET AIR ARM

Above. Fairey Fulmar. 2-seater fighter.

Below. Fairey Albacore. Torpedo-spotter-reconnaissance-dive-bomber.

(By courtesy of the builders.)

these raids was that of maintaining continuous patrol over the areas and of dropping bombs whenever flare paths were put out for the seaplane to use in taking off.

In April came a general intensification of air activity. Linked up with the campaign in Norway a great many actions were fought. Reconnaissance along the Norwegian coast was incessant; bombing attacks on enemy shipping, including warships and troop transports, were frequent and the first big attack by torpedo-carrying aircraft was made.

Germany continued to raid Scapa Flow at intervals, but it was found that heavy and accurate gunfire from ship and shore batteries could keep the raiding machines from achieving accurate bombing and the result was that little damage was done by these raids, although the Germans frequently claimed to have made hits on our ships. The opening stages of the Denmark and Norway campaign were marked by sharp air activity by both sides directed at the other's shipping. On April 9 two British cruisers were slightly damaged by German bombers and on the following day Royal Air Force aircraft bombed enemy cruisers in Bergen Fjord. One cruiser was hit and damaged. This attack was made in relays, working in quick succession, the aircraft flying in sections in line astern. In the raid made on April 11, on Scapa Flow, Fleet Air Arm aircraft co-operated with the Royal Air Force aircraft in defence. The total enemy losses on this occasion were estimated at eight.

It was on this day that Mr. Churchill revealed one of the most remarkable stories of air attack on shipping. Speaking in the House of Commons he described an attack by German bombers on H.M.S. Rodney. A large bomb hit the deck but bounced off, doing scarcely any damage. It was an important event as showing the resistance of a well-protected ship against aerial attack even when direct hits are secured and this single incident seems to have coloured to some extent future actions against shipping by aircraft attack. It may in part have been the cause of the intensive development of the attack by torpedo-carrying aircraft. In any case the first big torpedo attack was launched on the same day in Trondheim harbour where Fleet Air Arm torpedo-carriers—presumably Fairey Swordfish—made an attack on enemy ships. This action was not fully successful and the first impression gained by observers of the course of the air war was that the torpedo, when launched from an aircraft, was unlikely to prove a decisive weapon. Other views were held by the Admiralty with results which became apparent later in the year.

An attempt was made at this time to take a heavy toll of enemy shipping in the Kattegat and Great and Little Belts. Royal Air Force bombers made frequent sorties and on April 12 an 8,000-ton ammunition ship was sunk. Our own ships had to withstand a great deal of aerial attack at this time and the destroyer Gurkha was sunk by a formation of thirty Dornier bombers. The Gurkha went down with guns still firing. Fourteen men were lost. German warships were attacked as often as they could be found. On April 18 fifteen Fleet Air Arm aircraft attacked German transport ships at Bergen and scored several hits. One transport was set on fire, one storeship sunk, and one flying-boat set on fire. There was at this time, too, comment on the Admiralty announcement that mines had been laid in the Baltic. The first suggestion that they had been laid by air came from a Swedish newspaper.

On April 18 another enemy transport was sunk by Fleet Air Arm aircraft at Bergen. In this part of the month there was a good deal of enemy mine-laying activity, the estuaries of the Thames and the Humber being frequently visited. German views on the Norway campaign are of especial interest, for although they falsified the figures to suit their purpose, they also revealed to some extent the trend of enemy thought on the sea–air operations in this theatre.

It was claimed that Britain had lost 78 naval units and 55 aeroplanes in the first 17 days of the campaign, and it was further stated that the German fleet, by giving the German air force bases near to Britain, had completed its task and that in consequence the heavy losses it had suffered were justified. So the Germans at this stage seem to have been thinking in terms of decisive air attack on Britain. But the campaign showed that although fleets can work when they are within reach of shore-based aircraft, their operations can be considerably hampered and they must expect to suffer losses, mainly among the lighter craft.

The German comment on the campaign may be read with American comment which was to the effect that Germany had shown that she was incapable of inflicting serious damage on the British fleet by air bombing.

The final stages of the Norway campaign included one action of a most unusual and heroic kind. It was the attempt, described later in Parliament, made by a squadron of Gloster Gladiator biplane fighters to establish itself on a frozen lake in Norway. The Gladiators were taken out in an aircraft-carrier and from this they took off when many miles from land to fly to the pre-arranged spot, where preparations had been made to receive and to service them. The Gladiators landed safely and within a few minutes of their arrival they had been re-fuelled and prepared for action.

Subsequent events were a dogged struggle against innumerable and increasing difficulties. The German Air Force found the Gladiators almost immediately, and immediately came over in force to bomb the improvised aerodrome. The Gladiators gave combat, the pilots working continuously, taking off just as quickly as their machines could be prepared. A number of German aircraft were shot down, but the Germans maintained and increased the weight of their attack until many of the Gladiators had been destroyed on the ground and the lake had been made almost unusable. Ground staff and pilots worked magnificently in face of continual bombing attack, but finally all the Gladiators were destroyed or put out of action and the attempt to establish a fighter base in Norway had to be abandoned.

Bergen was frequently the target for bombing attacks by aircraft of the Fleet Air Arm and the fuel tanks here were damaged. The Germans intensified their bombing attacks on British warships.

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Towards the latter part of May the destroyers Whitley and Wessex were lost as a result of bombing attacks by enemy aircraft.

As the German movement through Holland and Belgium was taking place there were increasing calls on the Fleet Air Arm aircraft to co-operate with the aircraft of the Bomber Command. Enemy troop concentrations near the Channel coast were attacked. The Coastal Command was also in action making bombing raids on many occasions, and on May 30 one of its aircraft succeeded in setting fire to a 3,000-ton German supply ship in Bergen Harbour. Some limitation in view of those who believed that an anti-aircraft ship could in all cases hold its own against aircraft attack was called for when, on the day after the Bergen affair, the Admiralty announced the loss of H.M.S. Curlew off the coast of Norway. She was sunk by enemy bombers.

It is instructive now to note that the first big aerial clash between the Luftwaffe and the Royal Air Force occurred as the result of an amphibious operation and was, therefore, a co-operative action, with sea, air, and land forces working in close collaboration with one another. It was the Dunkirk evacuation, when the British Expeditionary Force had to be taken off in small ships and brought home while under the guns of the advancing German Army and within easy reach of its bomber squadrons.

This Dunkirk evacuation, though the culminating point of a military disaster of the first magnitude, was also, perhaps, the beginning of that form of triple co-ordination between the three Services which was later, in the Western Desert and in Greece, to prove so effective. The Dunkirk evacuation was regarded by many as " impossible " owing largely to the belief that the Germans would secure and hold local air superiority and would therefore be able to bomb the waiting troops on the beaches at leisure and would also be able to prevent our ships from coming in and taking them off. The brunt of preventing the Germans from holding local air superiority fell upon the Fighter Command of the Royal Air Force though the Coastal Command and the Fleet Air Arm also bore an important part in these astonishing operations.

The Coastal Command bombed harbours at Willemsoord, the Island of Terschelling, and other places, while in the skies above Dunkirk there raged an incessant air battle between the Luftwaffe and the R.A.F. It was the avowed intention of the Germans not to allow that army to escape. They threw in large numbers of aircraft in the attempt to prevent it from doing so. But by the fine fighting skill of the Fighter Command of the Royal Air Force they failed.

But it is worth emphasising once more that in this first major clash between the British and enemy air forces, the air was working in co-operation with the sea and not as an independent force.

It was on June 10, the day on which Italy declared war on Great Britain and France, that the Admiralty announced the loss of the aircraft-carrier Glorious. This gave rise to further discussions and further questionings about the rôle of aircraft-carriers in modern war at sea. The vulnerability of these ships was known and had always been known. But their value for making large area searches had been proved more recently. They had also been able in Norway to provide a base, where none other was available, for the offensive operations against the enemy of aircraft of the Fleet Air Arm. In reconnaissance and in the offensive they had been proved of the greatest value. It seemed to be generally believed that their value in these respects was such as to balance their vulnerability. This view was later to be confirmed in the operations in the Mediterranean.

During June and July the Fleet Air Arm came increasingly into the picture. And this was to foreshadow a gradually growing importance of this arm in future British operations. The Fleet Air Arm started the war with a few Blackburn Skua dive-bombers, a type of machine specially developed for ship use and having air brakes so that the speed can be controlled in the dive; it had numbers of Sea Gladiators, biplanes resembling the ordinary Gladiator and having a fairly good performance and exceptionally good powers of manœuvre; large numbers of Fairey Swordfish torpedo-carrying aircraft and a few other types of less immediate importance. Later on in the year the Fleet Air Arm began to receive new aircraft, including the Fairey Albacore and the Fairey Fulmar, the first another biplane torpedo-carrier and the second a ship fighter having a number of special and extremely interesting features.

The tendency was for the Fleet Air Arm to develop its own specialised aircraft in its own way and this was to some extent a new tendency. It must be confessed that at the outbreak of war the Fairey Swordfish would have been regarded by most people as completely obsolete. Its speed was far below 200 miles an hour compared with the Skua's 225 m.p.h. at 6,300 ft. It was a clumsy looking biplane having almost no feature to recommend it to the active service pilot. Yet it was this machine that was to achieve perhaps the greatest air feat of 1940 and to prove of enormous value to a great many of the more important sea–air operations.

It is not to be wondered at, therefore, that the Fleet Air Arm should choose as a replacement type the Fairey Albacore, also a biplane having some points of resemblance to the Swordfish but being better streamlined and capable of a good deal better performance. Before continuing to examine the actual actions of the Fleet Air Arm something more must be said of these aeroplanes. The Skua was the first monoplane to be adopted for use in British aircraft-carriers. It was throughout 1940 virtually the only true dive-bomber possessed by the British Air Force, for the Fairey Battle, to which dive-bombing duties were often assigned, has no air brakes and was not, in the first instance, designed with dive-bombing in mind. The Skua is built entirely of metal, on the stressed-skin system and it has a Bristol Perseus sleeve-valve engine with controllable pitch airscrew. The undercarriage retracts, the legs folding outwards. The wing span is 46 ft. 2 ins. and the gross weight 8,228 lb.

The Skua has the usual special Fleet Air Arm equipment and the fuselage is divided into watertight compartments so as to give it buoyancy should the aircraft be forced to alight on the water. The Blackburn Roc is the fighter version of the Skua and it has a four-gun, power-operated turret situated just behind the pilot's cockpit. There is a retractable fairing which helps to preserve good aerodynamic shape over the top of the fuselage when the turret is not turned in its direction. During 1940 the Roc did not figure in official reports of air fighting.

The Sea Gladiator has a gross weight of 5,420 lb. and a top speed of 245 miles an hour at 15,000 ft. It was introduced into the Fleet Air Arm about twelve months before the outbreak of war. Its successor is the Fairey Fulmar, the best looking aeroplane in the Fleet Air Arm, having the appearance of a neater and aerodynamically cleaner Battle. It is a two-seat aeroplane, but it fights as a single seater, thereby introducing a new and important conception of tactical methods for shipborne fighting aircraft.

For the Fulmar carries eight guns, all fixed in the wings and firing forward in the line of flight in just the same way as the landplane fighters like the Spitfire and Hurricane. The second member of the crew has no gun. His duties are concerned with navigation and with observation. The theory behind this arrangement is that for fighting over the sea it is important that there should be one person able to keep track of the changing position of the machine so that, when the time comes, it will be able to rejoin its carrier. Fighting in the air is so intensive a business that the man who is engaged on it cannot keep track of navigational details nor can he hope to make precise observations of enemy fleet dispositions at the same time. The Fulmar takes count of this special feature of air fighting over the sea and provides the second man as specialist in navigation and observation so that the pilot can concentrate his attention entirely on the actual combat.

That the scheme is sound was shown during the actions in the Mediterranean in the closing months of the year. The Fulmar proved itself to be extremely effective in action against Italian fighters and bombers.

One other comment on the Fleet Air Arm equipment must be made before continuing to consider the actions in which it took part. This is concerned with the aircraft of the Coastal Command. Often during the time of the German advance through Holland and Belgium, and during the time of the Dunkirk evacuation, the Fleet Air Arm worked in collaboration with the Coastal Command. And it therefore comes about that some Coastal Command aircraft are designed to carry out duties similar to those performed by Fleet Air Arm aircraft. There is also to be noted a tendency in Coastal Command types for the design to be specially adapted for what might be called naval duties. This applies not only to the flying-boats but also to some of the other machines. The Bristol Beaufort, for instance, is specifically designed to be usable as a torpedo-carrier or a mine-layer. It can take the torpedo within the bomb bay, in a totally enclosed position. And the Beaufort was used a good deal during the year under review to make torpedo attacks on enemy shipping.

This, then, was the general equipment position in June and July when the Fleet Air Arm began to appear with increasing frequency in the official communiqués. The Fleet Air Arm was also still using one or two additional types of aircraft for catapult launching. The Fairey Seafox, a float seaplane, and the Vickers-Armstrongs Walrus, an amphibian, were among them. The Walrus, though slow by modern standards and having an awkward almost grotesque appearance compared with that of the newer types, such as the Fulmar, did good work on many occasions. It even appeared in one official communiqué as having made a " dive-bombing " attack on a certain objective, a thing of which its greatest admirers would hardly have suspected it of being capable!

Before continuing the account of the operations in their chronological order it is as well in this place to say something of the raid that was made in the middle of the year on German ships lying at Kiel. A heavy raid was made on this well-defended spot and good results were obtained; but it was not until the winter that it was considered fit by the Admiralty and the Air Ministry to issue for publication details of the damage that had been done together with photographs showing it. One of the chief objectives in this raid was the 26,000-ton battle-cruiser Scharnhorst which had been damaged in an earlier action.

At the time of this raid the Scharnhorst lay in a floating dock near the Germania shipbuilding yard, a part of Krupps. In the submarine building sheds to the south of the Germania yard were three 750-ton ocean-going submarines and one outside in a floating dock. Southward again were two cruisers—one of the 10,000-ton " Hipper " class and one of the 6,000-ton " Köln " class. Various destroyers, submarines, liners, tankers, and other vessels were in the construction basins and at other points, and by the Imperial yard was an aircraft-carrier of 19,250 tons, not completed, but about to leave port. Between the aircraft-carrier and the Scharnhorst there was the pocket-battleship Lützow of 10,000 tons in dry dock. The photographs taken by the R.A.F. also showed the Zahringen, formerly a battleship and now used by the Germans as a wireless-controlled target ship.

After the raid the photographs revealed the extent of the damage. Hits were secured on the Scharnhorst, on the " Hipper " class cruiser, on various other ships, and on the torpedo and gun stores on shore, and also on the central power station of the Deutsche Werke Yard. Dark streaks showing clearly in the photographs were interpreted as having been made by the passage of shipping through a layer of oil that had covered the surface. This layer of oil was believed to have been caused by the cutting of a supply pipe by bomb. It is worth remarking that this raid was not only difficult in itself owing to the weight of the opposition, but so also was the obtaining of the information about the positions of all the ships beforehand and the confirmation of the damage done afterwards. It was essential to get photographs to confirm visual reconnaissances and to obtain enough evidence from which to deduce the probable time during which the ships that had been hit would be put out of action.

It was about this time that the invasion threat began to take shape. Following the collapse of France events tended to point more and more to German preparations for a direct assault on Britain. As a result air action was called for to derange the German plans. On July 3 the Coastal Command, working in collaboration with the Fleet Air Arm, undertook intensive operations directed against the aerodromes and barge concentrations in and near Rotterdam. From this time on the " invasion " ports in occupied Holland and France, as they came to be called, were frequently raided by Royal Air Force and by Fleet Air Arm aircraft, and it became one of the primary duties of the Air Arm to maintain these ports under a state of almost continuous bombardment and to disperse concentrations of barges and other shallow draught vessels which might be used for the transport of troops across the Channel.

Almost the first indication of a shift of the centre of gravity of the war to the Mediterranean came in early July. It was merely an advance hint, for at the time German invasion preparations were still going forward at full pressure and it was not for many weeks afterwards that the attempt was temporarily renounced. But in the early part of July the Fleet Air Arm attacked Italian warships in the harbour at Tobruk, while other Fleet Air Arm machines attacked the aerodrome at Catania, Sicily. It was at this time too that the Air Ministry referred to the extensive mining operations in the Baltic. Nightly for twelve weeks Royal Air Force Bomber Command aircraft had been laying mines in all the navigational waters in this area.

Here was another example of the Bomber Command of the Royal Air Force being called in to work with the Coastal Command on a task which was essentially naval. Another sea–air action of a melancholy kind was the operation against the French Fleet undertaken in order to prevent it from falling into enemy hands and being used against us. The French battle-cruiser Dunkerque at Oran was attacked by aircraft of the Fleet Air Arm and put out of action without the loss of any of our aircraft. Reconnaissance about this time also showed that the Fleet Air Arm, in its raid on Tobruk, had produced good results. Two large ships were seen to be aground, another one to be down by the stern, one smaller ship on its side and one cruiser and another ship in difficulties.

The operations to immobilise the French Fleet included a Fleet Air Arm attack on the 35,000-ton battleship Richelieu at Dakar, but in spite of these actions various reports were current about French Fleet movements which might prove dangerous to Britain. Among these was the report that the French aircraft-carrier Béarn, loaded with more than 100 American aeroplanes, was to leave Martinique for an unknown destination. Actually some of these rumours proved groundless, but they all produced a certain pressure on the air resources by calling for much reconnaissance work and a great number of difficult and delicate operations.

The situation now showed increasing definition, for gradually the Germans began to build up their aerial assault on our shipping, and especially on that which was passing in convoy through the Straits of Dover. Convoys going along this way were attacked incessantly by German aircraft, some of them dive-bombers. The enemy formations grew in size as the Royal Air Force fighters stiffened their resistance. July was a month of raids on our shipping and Dover became the object of enemy air attack on a large and increasing scale. The problems of protecting the convoys against these attacks from shore-based German aircraft, working at very short range, proved difficult. Continuous air patrol above the convoys in sufficient strength to meet any German assault was impossible, for the enemy could fling in big formations at a moment's notice, his positions along the occupied French coast acting as look-out posts from which our shipping movements could be watched.

While the Fighter Command of the Royal Air Force was called more and more into the picture in seeking to defend our convoys in the Straits of Dover, the Fleet Air Arm began to strike harder and more often at the Italians. The base at Tobruk was again raided, this time by Swordfish. Meanwhile, Skuas of the Fleet Air Arm bombed Bergen, while the R.A.F. Bomber Command kept up its sustained attack on barge concentrations, such as might have been used by the Germans for invasion purposes.

At this point operations were diffuse and apparently disjointed, but they were being gradually brought to a focus and every day the situation became clearer. The enemy was attempting to stop traffic along the Channel and also to prepare the way for an inward sweep by his aircraft. On the opening days of August, although the Fleet Air Arm was still busy in the Mediterranean—it raided Cagliari in Sardinia—the pressure on and around Britain itself was building up in a highly significant manner. It was on August 8 that the biggest raid on British shipping to that date took place. Three separate attacks were made on a British convoy by German aircraft and were pressed home with some determination. The results were not unsatisfactory, for 60 enemy aircraft were destroyed. It was estimated that some 400 German machines were used for the attacks. Sixteen British pilots were missing.

The Germans were undaunted by what appeared to be a signal reverse. Again, on August 11, they launched a further big attack on British shipping off the east coast. Again, it was estimated that about 400 enemy aircraft were used for the attack. Sixty-six enemy aircraft were shot down and 26 British aircraft were missing as a result of the clash. On August 13 Borkum seaplane base was raided by the Royal Air Force and Helder Harbour was bombed by the Fleet Air Arm.

But now the German purpose was clear. Big and mounting attacks were being directed at Britain. Over the Channel, up the Thames Estuary and over Portsmouth, large formations of German aircraft attempted to destroy our ships and to cut our shipping routes. Lightships off Dover were attacked and Dover itself, both by aircraft and by gunfire from the French coast. On August 18 the last of the big over-sea fights took place—for the subsequent aerial battles were not part of the sea-air operations proper, but more intimately connected with invasion attempts. In this battle 78 enemy aircraft were destroyed for 18 British aircraft lost. At this period the Bomber Command was again called in to co-operate with the Coastal

Command and with the Fleet Air Arm in attacking such objectives as docks on the Dutch coast. September opened with a big attack on Boulogne Harbour by Bristol Blenheims belonging to the Coastal Command working in collaboration with Fairey Albacores of the Fleet Air Arm.

It has been disputed whether any actual attempt to invade Great Britain was made in August or September; but it is abundantly clear that the preliminaries of some plan of invasion were being undertaken. If no invasion took place it was because those preliminaries did not achieve the success expected of them. But the mid-September operations by Germany against this country did show every mark of being part of an invasion plan. The first heavy attacks had been made on our shipping in the Straits of Dover and they were followed by heavy attacks on Dover itself. In mid-September the attacks moved up and inward, and it was on September 7 that the London docks received their heaviest raid. It began in the evening and set many fires going, which were used by the following night bombers to guide them to their targets.

It is especially significant that the big attack on the London docks by the Luftwaffe was followed on the next day by another heavy attack by Coastal Command aircraft on barges and ships at Calais, Ostend, Flushing, and other ports. Blenheims, Beauforts, Albacores, and Swordfish took part in these operations. They were continued on the following days so that almost nightly the " invasion" ports were visited by strong forces of bombers from the Coastal Command, the Bomber Command, and the Fleet Air Arm. We see here a dual tendency in the war. Over Great Britain the Luftwaffe was seeking to shut down the Royal Air Force by the most massive aerial attacks yet seen in the war. It is clear that the British interpretation was that these aerial attacks were preparatory to an invasion attempt, for while they were taking place, the British aerial bombing offensive was directed mainly and continuously against the invasion ports, against barge concentrations at Hamburg, Antwerp, Flushing, Ostend, Dunkirk, Calais, Boulogne, and similar places. So once again, in those intensive operations of September, we see that the co-operation between the Services is forced upon both sides whether they wish it or not. The Germans sought air supremacy as a preliminary to an army move. We fought against that attempt by resisting the air attacks with our fighters, while striking at the sea and land forces which were to conduct the actual invasion attempt with our bombers.

While these bombing operations were going on there was also a good deal of mine-laying by aircraft. The Coastal Command and the Bomber Command laid mines in enemy occupied harbours and territorial waters from the Norwegian coast to the Bay of Biscay.

September ended with continuous and heavy attacks on the Channel ports by the Royal Air Force and by a switching of German air activity more and more towards night bombing. Cherbourg and Brest were raided by the Coastal Command and German ships were sunk by bombing attack. It was a clear-cut picture, with the

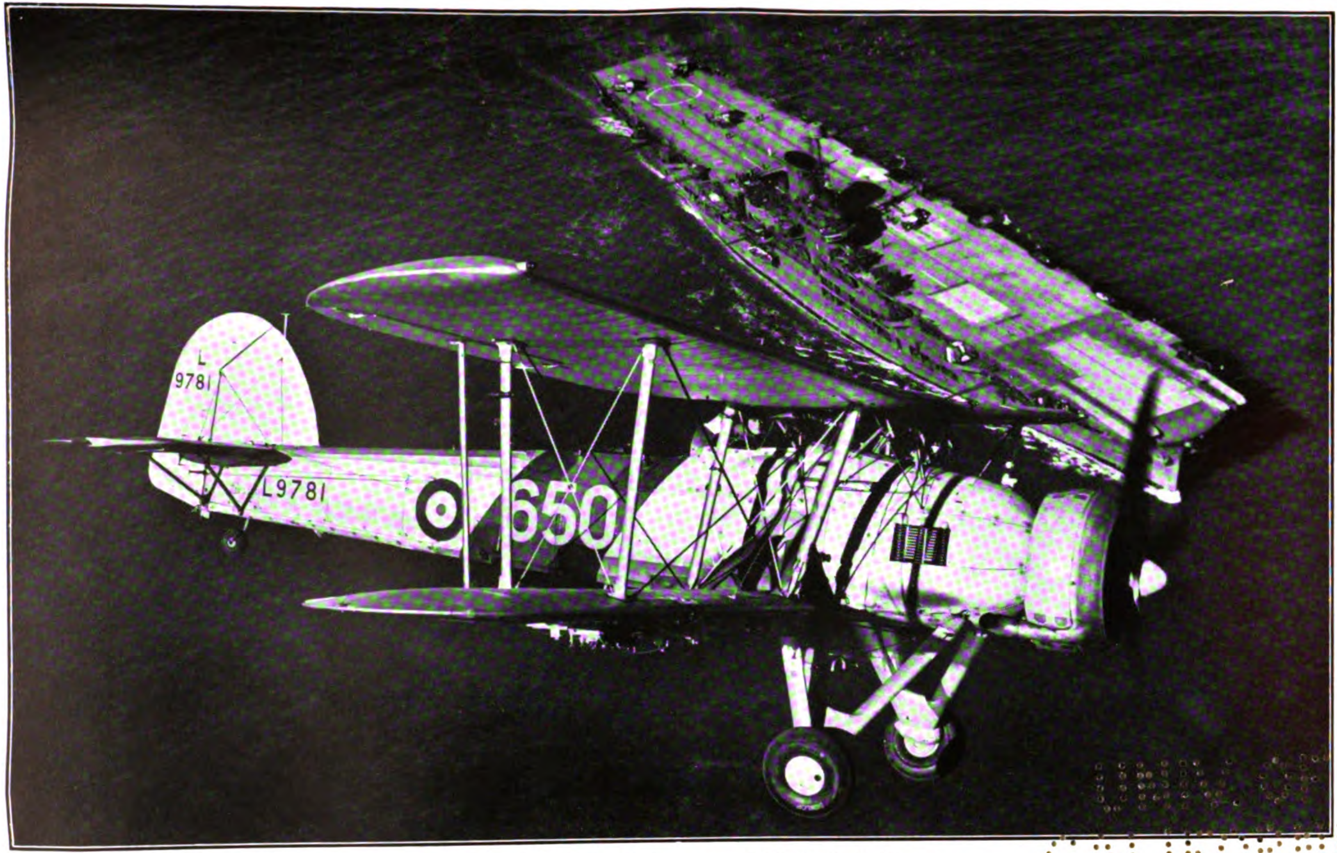
Channel ports being continuously bombarded and with the German occupied " invasion " ports being continuously subjected to counter-bombardment. It was preparation and counter-move, as clear-cut as these things can be in air war.

While this phase lasted the Germans did not concentrate much weight of attack on our western ports, though they occasionally raided Merseyside. Over coastal waters there was much air activity. A curious action occurred on October 2, when a Sunderland four-engined flying-boat met three Messerschmitt 110 twin-engined fighters which were escorting two Dornier 17 bombers off Ushant. The Sunderland stood and fought and succeeded in causing the German aircraft to make off without itself being seriously damaged. It would not be wise, however, to accept this as a sign that the large flying-boat can with impunity take on specialised fighting landplanes. The Sunderland is well armed, with a four-gun power-operated turret in the tail and guns in the nose and on both flanks ; but its powers of manœuvre and its performance in speed and rate of climb are all vastly inferior to fighting landplanes. Consequently this action must be looked upon as one of those cases where the spirit of the men prevailed over superior mechanical force.

In air fighting this validity of the spirit in the face of superior odds is often to be noted. Small formations can often break up much larger formations if they attack with dash and energy and without any signs of wavering. In a great many of the big air battles over Britain comparatively small formations of British fighters were deliberately sent to tackle much larger enemy formations and did tackle them with complete success. This led some people to assume that our fighters were working in small concentrations because we found that method was tactically superior. That is not quite the true reading of the position. There are, of course, advantages to be had from working in a small formation, but they are much outweighed by a large formation of aircraft of equal merit manned by crews of equal merit. Had we had the numbers of fighters available at any point we should certainly have preferred to set against the huge enemy formations equally huge defending formations. But when that was not possible we sent small formations and trusted to the spirit of the men and the technical excellence of the machines to make good the quantitative deficiencies.

Enemy attacks on points along the south and east coast and on our shipping continued during the early part of October. On the 8th the Bomber Command was called in again to exert its influence against Nazi naval preparations and heavy bombers raided Bremen and Wilhelmshaven. Kiel was also raided two nights later. The " invasion " ports continued to receive attention and occasionally successes were recorded against German supply ships, as on the 12th, when one such ship was set on fire by Bristol Blenheim bombers in Trondheim Harbour.

On October 16 enemy destroyers at Texel were bombed by a Lockheed Hudson of the Coastal Command, and on this day also the Fleet Air Arm conducted a heavy attack on Brest. It was on October 18 that the Air Ministry issued a statement that German



Fairey Swordfish in flight over H.M.S. Ark Royal.

(Photograph by Charles Brown.)

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invasion troops had been embarked at the invasion ports on September 16, the day after the big victory of the Royal Air Force over the Luftwaffe. These troops were afterwards disembarked. The inference is that a plan existed whereby, had the air war proceeded satisfactorily, the Germans would have made their invasion attempt at this time.

We now reach a period of the year when there was a partial lull in the air war in so far as it affected directly operations at sea. There were still attacks by our bomber forces on German harbours and shipbuilding centres and the " invasion " ports received fairly frequent visits ; but in comparison with the intensity of the earlier raiding this period of weeks passed in comparative quiet. But it was a period during which great things were brewing and this time they were brewing on our side and not on the German.

First, it is to be noted that the Fleet Air Arm was being built up with fresh equipment, and that it was settling down with full experience of its special powers and limitations. Some sign of where it would strike had been given during the months of September and October. For instance, aircraft of the Fleet Air Arm had raided Benghazi and had sunk two ships. There had been sweeps of the Mediterranean during which Italian aircraft had been shot down by Fleet fighters. The Dodecanese had been bombed and Italian supply lines in Egypt had been attacked by the Fleet Air Arm, working in collaboration with the Royal Air Force. Sidi Barrani had also been bombed by aircraft of the Fleet Air Arm.

Then, on the night of November 11–12 came the brilliant action against the Italian Fleet at Taranto. It was a bright moonlight night when aircraft from the aircraft-carriers Eagle and Illustrious—our oldest and newest vessels in this class, flew over Taranto and conducted the most determined and most accurate attack on shipping of the war. The attack was by means of air-launched naval torpedoes. Fairey Swordfish were used as the main striking force, and they were able to make their attack from very low in spite of a balloon barrage and heavy anti-aircraft fire. There was a short interval before the Admiralty announced the action in order that information could be collected as to exactly what damage had been done. It was found that a battleship of the " Littorio " class and two ships of the " Cavour " class had all been put out of action. It may be mentioned that among the aircraft which went out to take photographs of the scene after the raid were some Glenn Martin Maryland bombers, a type of aircraft which had not previously figured to any large extent in the air news.

This Taranto operation was one of the finest of the war, for with the loss of two aircraft a really serious blow had been struck at the Italian Fleet and our position in the Mediterranean greatly improved. But it also had significance in the larger pattern of the war for it was immediately followed by the successful attack against Italian positions in the Western Desert, and also by the transfer of the operational responsibility for the Coastal Command from the Air Ministry to the Admiralty. It was the beginning, in a word, of a full realisation of the meaning of sea and air power working in the closest collaboration. The operations in the Western Desert, indeed, cannot properly be described as naval, military, or air operations, for the three arms were so interlaced that their functions were mingled in a more intimate manner than had ever been seen before. It was a case of extremely competent team work.

This remarkable year of 1941 may be looked upon, when the air operations are being considered, as having shown two things above all others; first, the importance of inter-Service co-operation in all big operations and, second, the growing value to Great Britain of air power at sea. Those are the two outstanding points. There are a host of other detail points, such as the revelations of the vulnerability or lack of vulnerability of various kinds of ships to bombing attack; but those two stand out.

It was because he secured a high degree of co-operation between his land forces and his air forces that the enemy achieved his successes in France. Before that date it must be admitted that there had been a growing view in these islands that the Services could work in some way in watertight compartments, each keeping to its own element and not co-operating or even collaborating with the other two. That theory has been shown to be utterly wrong for all great Powers; but disastrously wrong for a maritime power. Co-operation between the three Services is the most essential point of the military method of a maritime power that hopes to survive. It was suddenly forced upon us at Dunkirk. So it may be, when that "military disaster," to use the phrase employed in the House of Commons, is looked at in the perspective of history that it will be seen as the thing that saved us, for it forced upon us the lesson of three-element operations. It proved that when the pinch came and when we had to exert all the strength we had, we came automatically (and inevitably) to three-element operations, with the Navy, the Army, and the Air Force co-operating.

It was not until near the end of the year, when the Western Desert operations took place, that the lesson was put to our advantage. When we used it the method indicated that the strength of the three arms is more than tripled when they work in really close co-operation.

The difficulties of three-element co-operation are very great. The influence of the weather alone is different for each of the different arms. The Air Arm is especially limited by bad visibility and the problem of maintaining contact with ground or with naval forces during an engagement has been known since the war of 1914 to be one of extreme difficulty. In that war various methods were tried whereby Army co-operation aircraft, flying above infantry, could tell if the troops they saw below were their own or those of the enemy. In one method that was tried the infantrymen were caused to wear on the backs of their uniforms a bright metal disc, the idea being that while this would not show to the enemy it would catch the light and reflect it enough to tell the airman above the identity of the men below. It can be appreciated that, if the difficulties of recognition between infantry soldiers and low-flying Army co-operation aircraft are as great as that, the difficulties of securing full co-operation between all the various branches of an air arm, including not only the dive-bombers, but also the heavy bombers, and the fighters, are immense.

The same is true when the co-operation between air and naval forces is being considered. Unimaginably difficult problems have to be faced. In short, the whole inference to be drawn from the German advance across France, the evacuation of Dunkirk, and the Western Desert operations is that the new way of waging war is not—as some seemed to think—the result of a brilliant flash of genius on the part of Herr Hitler or the German General Staff; but a hard and difficult development of means and method. In this the development of co-operative warfare may be said to resemble the development of engineering wherein the tendency has been always towards more elaborate and more complex preparatory measures and a more intense inter-working of different specialists. Whereas the early feats of engineering were performed by one man, it now requires the co-operative effort of a great many men to produce the more elaborate and larger creations of to-day. In exactly the same way modern war must be the province of many specialists working in close collaboration and drawing upon enormous masses of knowledge and experience.

So the first point to be noted in the war, as it went during the year under review, is that Great Britain learnt or re-learnt the lesson that the three Services are interwoven and must be used in co-operative effort, if the country, as a whole, is to develop its maximum strength. The second point is the growing value to Great Britain of air power at sea.

From the opening days of the war the Coastal Command of the Royal Air Force was called upon for heavy duties. It was called upon to make frequent sweeps, to assist in the protection of convoys and to bomb enemy ports and enemy shipping and all the time to maintain a good reconnaissance of enemy coastal positions. It was also called upon from time to time, as in the Altmark incident, to conduct special searches. All this work was connected with the maintenance of our trade routes and the protection of our shipping. But during the year the position changed. With the collapse of France the demands made upon the Royal Navy were enormously increased. The corollary was that the demands upon the Coastal Command were increased. In the Norway campaign it was not so heavily tried as in the subsequent months, and especially towards the latter part of 1940, when the Germans were seeking by every means in their power to cut our sea routes.

It is instructive to compare the problems of shipping protection in 1940 with those same problems in 1917. In the former war the U-boat and the surface-raider were the two chief troubles. Added to them in 1940 there was the aircraft. Now the aircraft had not proved extremely well suited to attacking shipping. In fact its successes had not been very many and a fairly large number of machines had been brought down by gunfire from ships. It is worth referring back to the official communiqué of December 27, 1940, which gave the following figures for aircraft shot down by ships. In all 151 were brought down by H.M. ships and auxiliary warships, and the total including those aircraft brought down by other vessels, including fishing vessels, and by units of the Dutch, Norwegian, and Polish navies, and by anti-aircraft guns in Norway, manned by naval personnel, was 192 during the whole of the period from the beginning of the war until December 1. These figures include only those aircraft whose destruction was confirmed. In addition there were 91 whose destruction was probable but could not be confirmed. Aircraft of the Fleet in the same period destroyed 52. It will be seen, therefore, that ships were by no means unable to defend themselves against aircraft attacks and that they had in fact done well.

But it is not only in the attack direct that the aircraft is useful in commerce raiding. Towards the latter part of 1940 the Germans increasingly used large, four-engined aircraft to co-operate with their submarines and surface vessels—especially along the western approaches—instead of to make direct attacks. In other words the co-operative method was again tried as being likely to give results where the simple attack on ships by aircraft had failed. And the co-operative method did show results. The losses due to U-boats alone, or to aircraft alone, were less than twice the losses due to aircraft and U-boats and other raiders working in co-operation.

The answer was again found in co-operation. The Coastal Command, while remaining part of the Royal Air Force, had its operational policy transferred to the Admiralty. Thus, this Command, while remaining an integral part of the R.A.F., was in effect directed by the Admiralty. As mentioned at the beginning of this chapter the step was announced by the Prime Minister, Mr. Winston Churchill, in the House of Commons, and it undoubtedly owed something of its origin to him. The broad inference which may be drawn is that the co-operation of U-boat and aircraft had to be countered by co-operation between Royal Navy and Royal Air Force.

That, however, does not mean that the organisation of the Services had to be fundamentally altered or that the Coastal Command had to become part of the Royal Navy as the Fleet Air Arm is part of it. That seemed to be the idea of some critics. But it does mean that the co-operation must be close and continuous. Germany, if an interim review of the situation be permitted, seemed to have based her hopes of overcoming the resistance of the British Navy by land and air operations in combination. The U-boats and surface-raiders came also into the picture, but fundamentally it was the aeroplane and the tank that were to provide the means of defeating the British warship. In pursuance of this scheme the strip of French coast was occupied and numerous air bases established along it. The tank provided the air bases from which the aircraft would eventually work against our ships.

In this attempt to cut our sea routes by air action the Germans turned always to the dive-bomber. They had found that the target presented by a moving ship was an extraordinarily difficult one for high-level " precision " bombing (as it is somewhat curiously called). The high-level bomber was useful in an attack on ships, but only in order to make the task of the anti-aircraft guns and of defending fighters more difficult. Thus, in the attacks on convoys which were made in the Straits of Dover, the German tactics consisted of a simultaneous attack by high-level and dive-bombers. The attention of the gun crews was then divided and the fighters might concentrate on one set of bombers and leave the others to do their work at leisure. But all experience confirmed that the high-level bombers rarely obtained hits. So it was to the dive-bomber, and especially the rather ancient Junkers 87, that the Germans turned in their efforts to cut the sea routes.

In attacking a ship the Junkers 87 is effective for it comes down and almost places its bomb on the vessel. The dive can be nearly vertical without an excessive speed being accumulated, for the machine is equipped with air brakes. In making its escape after having released its bomb the machine can skim the surface of the water and turn this way and that, skidding by means of rudder with opposite aileron, in order to throw out the aim of the gunners. A squadron which dive-bombs a ship usually forms up in line astern and then " peels off " to come down in an almost vertical dive, the machines following one another at very brief intervals. There is only one disadvantage to the dive-bombing method of attacking ships, but fortunately it is a serious one. It concerns the powers of penetration of the bomb.

The Junkers 87, working on medium range, can take a 1,000-lb. or two 500-lb. bombs. When the vessel being attacked is a merchant ship without deck armour it is sufficient to hit the ship with one of these bombs to damage it. It does not matter how low the bomb is released, for it will have sufficient penetration to pierce the upper structure. But if the ship is armoured a different state of affairs exists. The bomb must be given greater penetration and this can only be secured by the design of the bomb itself and by the speed at which it strikes its target. A bomb quickly attains a high speed, but for good penetration it must be allowed to fall for such a distance that its speed is very great indeed. An armour-piercing bomb will only pierce armour of great thickness when it is dropped from a great enough height to allow it to gather speed.

We have, therefore, the curious position that dive-bombing is the best way of hitting ships at sea, and especially ships that are manœuvring, but that it does not give the bomb sufficient penetration to enable it to damage ships with good deck armour. For penetrating deck armour, high-level bombing is necessary ; but it does not attain the accuracy that is necessary to get a large percentage of hits. A well-protected warship must be attacked from a great height. It was made clear during the year under review, however, that the Germans fully appreciated this point and were using dive-bombing judiciously, against those ships which they believed would be unable to withstand it. They did not make great efforts to damage the more heavily protected vessels for they recognised that their chances of doing so were small.

But it was perfectly plain by the end of 1940 that great efforts would have to be made by the Fleet Air Arm and the Royal Air Force, working in collaboration with the Royal Navy, to devise appropriate tactical methods for coping with enemy formations engaged on attacking ships at sea. The extended sea routes and the generally unfavourable strategical situation in which Great Britain found herself demanded that some steps should be taken to counter the use of German shore-based aircraft against British ships. This was the great and outstanding fact of the air war at sea.

And now, finally, something must be said about supply. By the end of 1940 the United States aircraft industry was beginning to get into its stride as a big producer of aircraft for the Royal Air Force and especially for the Coastal Command. The Coastal Command, as has been mentioned, had been using the Lockheed Hudson twin-engined aircraft since the outbreak of war on coastal reconnaissance duties and for bombing enemy coastal positions. By the end of 1940 the United States industry was turning out these Lockheed Hudsons rapidly and a newer type, the Lockheed Vega Ventura, was also being built in quantity for delivery to Great Britain. The Consolidated Aircraft Corporation had also engaged to deliver to Great Britain a number of aircraft, including some flying-boats well adapted for coastal reconnaissance and convoy work. The Consolidated 29, the Consolidated 31, and the Consolidated 28 were all earmarked for the Royal Air Force, as well as the four-engined Boeing bombers and numerous other types.

It became clear that speed of delivery was of mounting importance and that it would affect the British position in ability to counter air attacks on shipping. The consequence was that an Atlantic ferry service was started, organised in America by Mr. Woods Humphery, who was formerly managing director to Imperial Airways, Ltd., and manned by a staff of experienced air-line pilots. The object of this service was to speed up delivery of the new American machines. Many of them were easily capable of making the Atlantic flight non-stop, though some, such as the Lockheed Hudsons, had to have extra fuel tanks fitted in the bomb bays. The flying of the machines across saved not only the shipping space, a matter of increasing importance, but also the time spent in assembling and dismantling the machine for test flight at the works, crating it, conveying it to the ship, loading it, unloading on this side, re-assembling, and again test flying. The time saved by making the Atlantic passage direct was so considerable that the objective was established to bring as many of the new American machines over by this method as possible and the result was that before the close of 1940 a growing Atlantic ferry service had come into being.

It is interesting to compare this ferry service, which took in an ocean crossing of about 2,000 miles, with the ferry service of 1914–18 which took in a sea crossing of about 20 miles. The Atlantic service was the direct descendant of the earlier ferry service. And although the distance over water was one hundred times farther the hazards were not, perhaps, much greater, for the engines were so much more trustworthy and the instrumentation so much better. Moreover, since the earlier war, a body of air navigational experience had been built up and this made it possible for the pilots of the Atlantic ferry to achieve a regularity on the longer route which compared very

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H.M.S. Ark Royal operating aircraft.

(Photograph by Charles Brown.)

favourably with that which had been reached on the shorter route a quarter of a century before. The Atlantic crossing was being made towards the latter part of 1940 in an average time of about 12 hours with the Lockheed Hudsons, but when there was a strong favourable wind some much faster crossings were achieved.

The Atlantic ferry was a portent. It showed that the air factories of the United States of America and of Canada, though far enough away to be out of range of the enemy's bombers, were yet near enough to lend Great Britain immediate aid to the limits of their productive capacity, or at any rate to the limits set by the United States Navy and Army in laying down what numbers could be released for export. But this Atlantic ferry service also demonstrated what advances had been made in the long-range oversea operating capabilities of aircraft. It, therefore, drew attention vividly to the increasing part that would have to be played by air co-operation in the protection of the sea routes. The idea of the Atlantic ferry, however, was not new and before the outbreak of war, when it had been decided to build certain bombers in Canada, it had already been decided that they should be flown across to England.

Nineteen hundred and forty was a year in which one great fallacy was exposed and one great truth emphasised. The fallacy was that an air force could play a useful part in the strategy of the British Commonwealth as an entirely independent organisation, working in its own way, and without close collaboration with the other two Services. The truth was that an air force, working in close collaboration with the other two Services, was able to exert its full strength and that it must work in collaboration with the naval forces in order to protect the sea routes. Collaboration between the Services, indeed, was shown to be the key to future British success and the reason for past successes.

OLIVER STEWART.

CHAPTER V.

THE UNITED STATES NAVY.

THE year 1940 was marked by the adoption of plans for the expansion of the United States Navy to a size believed to be sufficiently large to prevent any aggression by European and Asiatic powers against the sovereignty of the powers of the Western Hemisphere. This Navy is referred to as the " two ocean fleet " by the Office of Public Relations of the Navy Department. It will be approximately twice the size of the Navy which was built, building and projected on January 1, 1940.

NAVAL POLICY, 1940.

The naval service is guided by the U.S. Naval Policy of 1940. This policy was prepared by the General Board of the Navy Department, approved by the Secretary of the Navy, and released to the Press on September 15, 1940. It supersedes the Policy issued to the service in 1937.

The provisions of the Naval Policy, 1940, are as follows :—

Naval policy is the system of principles, and the general terms of their application, governing the development, organisation, maintenance, training, and employment of a Navy. It is based on and is designed to support national policies and interests. It comprehends questions of character, number, and distribution of naval forces and shore activities ; of the number and qualifications of personnel ; and of the character of peace and war strategy and operations.

FUNDAMENTAL POLICY.

To maintain the Navy in strength and readiness to uphold national policies and interests, and to guard the United States and its continental and overseas possessions.

GENERAL POLICIES.

To develop the Navy to a maximum in fighting strength and ability to control the sea in defence of the Nation and its interests.

To make effectiveness in war the objective of all development and training.

To organise and maintain the Navy for major operations in both the Atlantic and Pacific Oceans.

To maintain and develop Naval Aviation as an integral part of the naval forces.

To maintain the Marine Corps in such strength as to provide the requisite Fleet Marine Force and detachments for other naval purposes.

To develop and maintain shore activities, including bases suitably located and defended, for the support of the mobile forces.

To locate shore activities in such geographical areas and construct them in such sites and in such manner as will promote security against air and other attack; and to apply this policy to existing activities as practicable.

To advance the art of naval warfare and to promote the development of naval material.

To maintain and train the officer and enlisted personnel requisite for the regular establishment and to provide for the procurement and training of the personnel required for the expanded war organisation.

To plan the procurement of material to meet war-time needs and to foster civil industries and activities useful in war.

To exercise economy in expenditures as compatible with efficiency.

To make systematic inspections of naval activities and material.

To encourage the growth of the merchant marine and of commercial aviation.

To co-operate fully with other departments and agencies of the Government.

FLEET BUILDING AND MAINTENANCE POLICY.

To keep the fleet at the required strength, balanced as to types of ships, by a continuing building programme.

To make superiority in their types the end in view in the design and construction of all naval vessels and aircraft.

To keep characteristics and designs for ships and aircraft up to date.

To maintain all ships and aircraft at the maximum of material readiness and fighting efficiency consistent with their age and military value, incorporating such improvements as are duly warranted.

COMBATANT SHIPS.

To build capital ships, carriers, cruisers, destroyers, minelayers, submarines, and other combatant types in numbers adequate to maintain a well-balanced fleet of the required strength in under-age vessels.

AIRCRAFT.

To build and maintain aircraft in numbers and classes adequate for the fleet requirements and for all other essential naval purposes.

To build and maintain non-rigid airships for coastal patrol and for other naval uses.

To build and maintain rigid airships as necessary to explore and develop their usefulness for naval purposes; and to co-operate with other agencies in developing commercial airships.

AUXILIARIES.

To build or acquire, and to maintain the minimum number of auxiliary vessels of the several types needed for the normal operation of the fleet, and for the maintenance, supply, and potential defence of outlying bases and stations.

To co-operate with other Government Departments and agencies in planning for and in designing new merchant and Government vessels which can be utilised as naval auxiliaries.

To maintain plans for rapid acquisition and effective conversion of merchant vessels for naval use in time of war.

MINOR WAR VESSELS AND SMALL CRAFT.

To build or acquire and to maintain such minor war vessels and small craft as required for naval districts and special service, developing suitable types as necessary.

FLEET OPERATING POLICY.

To keep in commission, fully manned and in active training, the number of ships necessary to provide a fleet of required strength in all types.

To organise the forces afloat to obtain maximum flexibility, mobility, and effectiveness in strategical and tactical operations.

To give full effect to established command principles, stressing unity of command and appropriate decentralisation in both execution and administration.

To operate forces afloat under balanced schedules formulated to secure excellence in strategy and tactics, gunnery, engineering, and other technical performance, and material upkeep ; and also to promote proficiency, contentment, and discipline of personnel.

To keep the United States Fleet strategically disposed and to assemble the Fleet for a period of not less than two months annually for advanced training.

To operate and maintain the Asiatic Fleet and other detached forces in readiness for incorporation into the United States Fleet.

To make foreign cruises for cultivation of friendly international relations and varied training of personnel.

To operate a naval train and a supply service sufficient for the upkeep and mobility of the forces afloat and for the maintenance and supply of outlying bases and stations.

To assign suitable vessels and facilities for training Naval Reserves.

To operate vessels necessary for surveying strategical and commercial areas outside the coastal limits of the United States and its possessions.

SHORE ACTIVITIES POLICY.

To develop two main bases on each coast and one in Hawaii.

To develop air and other essential bases, coastal and outlying, for the support of naval operations.

To maintain a system of naval districts and corresponding district forces for the control and security of district waters, coastwise sea lanes and adjacent sea areas ; for co-operation with the fleet ; and for the co-ordinated administration and protection of naval bases, navy yards, and other naval activities within the particular district.

To maintain all navy yards and naval industrial plants in such condition of readiness as to sustain the fleet in war.

To construct such naval vessels in navy yards as necessary to assure the continued availability of experienced technical personnel.

To encourage civil industries and activities useful in war.

To insure the effective availability of private shipbuilding and other private industrial plants for the national defence by a continuing programme of naval construction therein.

To procure and maintain suitable facilities for the training of naval and marine corps personnel, including reserves.

To maintain and operate the facilities necessary for the collection and dissemination of hydrographic, astronomical, and aerological information essential to the Navy and useful to governmental and commercial interests.

PERSONNEL POLICY.

To maintain the personnel at a high standard of efficiency and in sufficient numbers to meet the requirements of the naval service.

To develop and co-ordinate systematic courses of instruction and training for officer and enlisted personnel.

To assign officers to duty in foreign countries to broaden their professional education.

To maintain a reasonable excess of petty officers and non-commissioned officers over peace-time requirements in order to facilitate war-time expansion.

To restrict the transfer of personnel to that compatible with a high degree of training, morale, professional experience, and service efficiency.

To build up, train, and maintain Naval and Marine Corps Reserves to provide for mobilisation.

To cultivate close relations of personnel of the Navy and Marine Corps with the Reserves.

COMMUNICATIONS POLICY.

To provide and maintain a naval communication system based on war requirements.

To operate the communication facilities as required primarily by the current operating force plan, and for direct communication with overseas possessions.

To continue the use of naval communication facilities to increase safety at sea and in the air, including adequate communication with the United States Merchant Marine and commercial aircraft flying overseas.

To co-operate with American commercial communication activities so as to enhance their military value in time of national emergency and to safeguard the communication interests of the United States.

INFORMATION POLICY.

To acquire accurate information concerning the political, military, naval, economic, and industrial policies and activities of all countries.

To analyse and preserve information for ready reference and for historical purposes.

To disseminate useful information systematically throughout the naval service and to other Government Departments and agencies.

To provide protection against espionage and sabotage in co-operation with other departments and agencies.

To keep the public informed of the activities of the Navy, as compatible with military security.

MATERIAL POLICY.

To plan, in co-operation with other Government Departments and agencies, and with industry, for timely procurement of supplies and munitions necessary to maintain and augment the mobilised Navy.

To procure and maintain reserves of supplies and munitions in quantities to cover essential requirements beyond the productive capacity initially available in an emergency.

To procure and maintain, in co-operation with other Government Departments and agencies, adequate stocks of strategic raw materials.

To co-operate with other Government Departments and agencies, and with private industry, in the development of standards and specifications and of inspection organisations, methods and procedures.

To promote by continuous research and investigation the application of scientific discoveries and technical invention to the improvement of naval material.

LEGISLATION PROVIDING EXPANSION.

On the outbreak of war in Europe in 1939, the President of the United States on September 8, 1939, declared a limited state of national emergency in so far as the national defence was concerned. This permitted the Executive Departments to initiate certain measures improving the state of preparedness without awaiting the approval of the Congress, which was not in session at the time.

When the Congress reassembled in January, 1940, the President again directed its attention to the unsettled conditions throughout the world brought on by the wars in Europe and Asia. He urged that the question of the national defence be given prompt and earnest consideration. From time to time throughout the year the President directed additional messages to the Congress on this subject.

The Congress, taking heed of the President's messages and conditions throughout the world, especially Europe, passed a number of measures providing for the national defence.

The most important measures enacted by the Congress relating to the Navy were the following:—

(a) The Act of June 14, 1940.—To establish the composition of the United States Navy, to authorise the construction of certain naval vessels, and for other purposes.

This Act is known as the "11 per cent. Expansion Act."

(b) The Act of June 15, 1940.—To authorise the construction or acquisition of naval aircraft, the construction of certain public works, and for other purposes.

This Act is known as the "1940 Aviation Expansion Act."

(c) The Act of June 28, 1940.—To expedite national defence, and for other purposes.

This Act is known as the "Expediting Naval Shipbuilding Act."

(d) The Act of July 19, 1940.—To establish the composition of the United States Navy, to authorise the construction of certain naval vessels, and for other purposes.

This Act is known as the "70 per cent. Expansion Act (Two Ocean Fleet)."

(e) The Act of September 16, 1940.—To provide for the common defence by increasing the personnel of the armed forces of the United States and providing for its training.

This Act is known as the "Selective Training and Service Act of 1940."

PURPOSES OF THE SEVERAL ACTS.

THE 11 PER CENT. EXPANSION ACT.

1. Increased the authorised composition of the United States Navy in under-age vessels from 1,557,480 to 1,724,480 tons.

NOTE.—This was an increase of 167,000 tons (approximately 21 vessels). The increase was in the following categories:—

(a) Aircraft carriers	79,500 tons.
(b) Cruisers	66,500 ,,
(c) Submarines	21,000 ,,

2. Authorised the President to construct such vessels as might be necessary to provide the total under-age composition authorised by section 1 of the Act and procure the necessary aircraft.

3. Increased the number of authorised useful naval aeroplanes from not less than 3,000 to not more than 4,500.

4. Increased the authorised number of useful lighter-than-air craft to a total of not more than 18. At the time there were 7 lighter-than-air craft (blimps) in service.

5. Authorised the President to acquire and convert or to undertake the construction of 75,000 tons of auxiliary vessels, approximately 22 vessels.

6. Authorised an appropriation of $35,000,000 for shipbuilding ways, shipbuilding docks, and essential equipment and facilities at naval establishments for building or equipping any ship authorised.

and $6,000,000 for essential equipment and facilities at either private or naval establishments for the production of armour and armament.

7. Made all contracts for the increases authorised subject to the provisions of the Act of 1934. This includes the construction of ships alternately in Government and private yards, a 10 per cent. limitation of profit, and the requirement that 10 per cent. of the aircraft, including engines, must be constructed in Government factories.

8. Provided that vessels of the following categories shall be deemed under age until the number of years indicated have elapsed since completion.

Battleships	26 years.
Aircraft carriers and cruisers . .	20 ,,
Other combatant surface craft . .	16 ,,
Submarines	13 ,,

9. Repeated the requirement contained in the 1938 Act that the Walsh-Healy Act, relating to labour and wage conditions, shall apply to the construction, alteration, furnishing, or equipping of the vessels authorised, unless in the judgment of the President, such course would not be in the interests of national defence.

10. Authorised an appropriation of $6,000,000 for modernising the U.S.S. New York, Texas, and Arkansas.

11. Authorised the construction by contract on a cost-plus-a-fixed-fee basis of authorised Naval Public Works projects in the 14th Naval District (Hawaii), exclusive of dredging, and restricts the fee to 6 per cent. of the authorised cost.

12. Authorised the establishment of a naval consulting board of seven members to make recommendations to the Secretary of the Navy in matters concerning the naval establishment and the national defence.

THE 1940 AVIATION EXPANSION ACT.

1. Increased the number of authorised useful naval aeroplanes from not less than 4,500, the present number then authorised and in process of building, to not less than 10,000, including 850 planes for the Naval Reserve, and the number of useful non-rigid aircraft to not less than 48.

2. Authorised the President to provide training facilities for 16,000 naval aviators and enlisted pilots. It was estimated that 16,000 pilots would be required for 10,000 planes. The number of pilots in active service at the time was 2,958. One hundred and fifty was the maximum number of naval pilots that could be trained per month with the existing facilities. When the additional are provided it will be possible to train approximately 550 per month.

3. Authorised the Secretary of the Navy to establish, develop, or increase naval aviation facilities, including the purchase of land and the construction of buildings and accessories, at a total cost not to exceed $144,132,000, spread over several years.

4. Provided that all of the facilities authorised by the Act might be constructed on a cost-plus-a-fixed-fee basis. It will take two to three years to develop the training facilities and from three to five years to develop the air bases. The additional air bases

authorised in the Act are essentially those recommended to the Congress last year by the Hepburn Board, except that the Act does not authorise the development of Guam as a major air and submarine base.

THE EXPEDITING NAVAL SHIPBUILDING ACT.

1. Authorised advanced payments to be made to contractors not exceeding 30 per cent. of the contract price.
2. Authorised the Secretary of the Navy to negotiate contracts for the acquisition, construction, repair, or alteration of naval vessels, naval aircraft, machine tools, and other similar equipment without competition.
3. Changed the provisions of existing law regarding the limitation of profits on contracts for naval vessels and aircraft.
4. Modified existing laws regarding hours of work and compensation for overtime work.
5. Removed the statutory limitation with respect to the cost of vessels authorised by the Act approved June 30, 1937.
6. Removed the statutory limitations with respect to the cost of any other naval project of construction as might be necessary to expedite national defence.
7. Authorised the Secretary of the Navy to employ additional personnel.
8. Authorised the Secretary of the Navy and the Secretary of the Treasury to modify existing contracts to expedite military and naval defences.
9. Authorised the Secretary of the Navy to use available appropriations for public works projects, inclusive of buildings, facilities, utilities (including Government-owned facilities at privately owned plants and expansion of such plants), and the acquisition of land and the purchase and lease of structures.
10. Authorised the Secretary of the Navy with or without advertising or competitive bidding to provide out of available appropriations for the operation and maintenance of any plants, buildings, facilities, utilities constructed pursuant to the authorisations contained in the Act either by means of Government personnel or through the agency of qualified commercial manufacturers.

THE 70 PER CENT. EXPANSION ACT (THE TWO OCEAN FLEET).

1. Increased the authorised composition of the United States Navy in under-age combatant vessels from 1,724,480 tons to 3,049,480 tons, an increase of 1,325,000 tons.
2. Authorised an appropriation of $150,000,000 for essential equipment and facilities at either private or naval establishments for building or equipping any complete naval vessel or portion thereof heretofore authorised or authorised by the Act.
3. Authorised an appropriation of $65,000,000 for essential equipment and facilities for the manufacture of ordnance material or munitions at either private or naval establishments.
4. Authorised the appropriation of $35,000,000 for the expansion

of facilities for production of armour at either private or naval establishments.

5. Authorised the President to acquire and convert or to undertake the construction of :—

(a) Patrol, escort, and miscellaneous craft as might be necessary to supplement the tonnages heretofore authorised or authorised by the Act.

(b) One hundred thousand tons of auxiliary vessels.

6. Provided that no vessel, ship, or boat (except ships' boats) now in the United States Navy or being built for the Navy shall be disposed of by sale or otherwise except as is now provided by law.

7. Increased the number of useful naval aeroplanes from not more than 10,000 to a total of 15,000 and provided that this total might be exceeded if in the judgment of the President this number is not sufficient to meet the needs of the national defence.

THE SELECTIVE TRAINING AND SERVICE ACT.

Provided for compulsory registration and training of males between the ages of 21 and 36 in the armed forces of the United States. All vacancies in the United States Navy are being filled on a voluntary basis.

STATUS OF PERSONNEL, COMBATANT SHIPS AND AIRCRAFT.

According to a press release by the Navy Department the status of personnel, combatant ships, and aircraft on December 1, 1940, was as follows :—

AUTHORISED STRENGTH, 1941.

	U.S. Navy.	U.S. Marine Corps.
	191,000	38,600
Regular		
Enlisted	166,388	38,429
Officers	10,840	1,592
Reserve		
Enlisted	48,386	14,752
Commissioned Officers ...	15,911	1,272
Aviation Cadets	1,364	119
Merchant Marine Cadets	580	

RESERVES ON ACTIVE DUTY.

	U.S. Navy.	U.S. Marine Corps.
Enlisted	16,704	5,643
Officers	3,369	703

COMBATANT SHIPS

Type.	Under age.	Over age.	Building.	Total.
Battleships ...	12	3	17	32
Aircraft Carriers ...	6	0	12	18
Cruisers	35	2	54	91
Destroyers ...	85	74*	166	325*
Submarines ...	36	68	81	185
Total ...	174	147*	330	651

* Does not include 50 over-age destroyers to Canadian ports and 45 ex-destroyers converted to special types.

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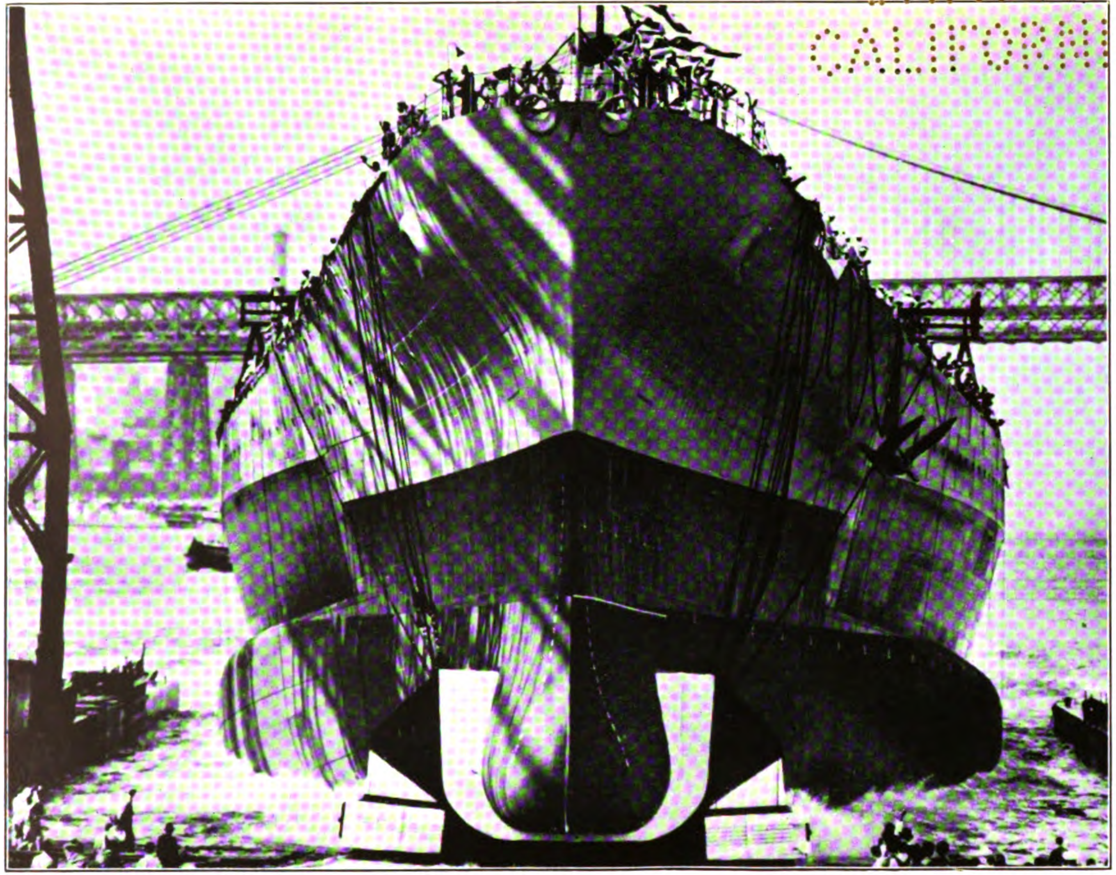

The second of the new American battleships, U.S.S. North Carolina, taking the water at Brooklyn Navy Yard, June, 1940.

(Photo by Planet News.)

AIRCRAFT.

U.S. Navy		
Service	1,590	
Obsolete	370	
Obsolescent	216	
Experimental	33	
	2,209*	
U.S. Naval Reserve		
Service	201	
Obsolete	25	
	226	
Total		2,435

* 181 assigned to Marine Corps.

VESSELS UNDER CONSTRUCTION.

According to a Navy Department press release of November 1, 1940, the following vessels were under construction in addition to those listed above :—

Type.	Number
Minesweepers	11
Repair Ships	2
Submarine Tenders	5
Seaplane Tenders	9
Minelayer	1
Submarine Chasers	14
Motor Torpedo Boats	40

The present estimated date of completion of the building programme is 1947 ; however, it is anticipated that the major part of it will be completed in 1944.

OPERATIONS AND TRAINING.

The President of the United States, as provided by the Constitution, is the Commander-in-Chief of the armed forces of the United States. President Roosevelt is now completing his eighth year as commander-in-chief, and in January, 1941, he will be inaugurated for another term of four years. It will be recalled that he served as The Assistant Secretary of the Navy from March, 1913, to March, 1921—the World War Period.

He has always taken an active interest in all matters relating to the Navy, and during the first half of December he made an inspection of naval facilities in West Indian waters, including the sites for naval bases which are being leased from Great Britain for a period of ninety-nine years. The subject of adequate naval bases has been given increasing attention the past few years, especially for the use of the aircraft component of the Navy. This interest was given added impetus when President Roosevelt negotiated the exchange of fifty destroyers for certain rights to construct naval bases in British territory of the Western Hemisphere.

The exchange provided that the United States had the right to lease for ninety-nine years sites for bases in the Bahamas, Jamaica, St. Lucia, Trinidad, Antigua, and British Guiana. Similar rights in Newfoundland and Bermuda were gifts. The action of the President met with the approval of the people of the United States who are becoming more and more aware of the importance and necessity of bases in the conduct of war. As bases are in a sense equivalent to ships, the sites, when developed as bases, will add immeasurably to the power of the United States Navy in playing its part of the defence of the Western Hemisphere.

Moneys have been allocated for the development of the bases which are being planned by Joint Boards of the Army and Navy. However, it is expected that some time will elapse before the bases are ready for the use of the naval forces which are patrolling the " 300 miles safety zone " established by the Pan-American Union shortly after the outbreak of war in Europe in 1939.

In October, 1940, these naval forces were constituted a single command and designated as the " Patrol Force." It remains a part of the United States Fleet.

This Fleet, early in 1940, left the San Pedro-San Diego training area, off the Southern California coast, for the strategic area of the Hawaiian Islands where is located the extensive Pearl Harbour naval base. It has remained concentrated in this vicinity throughout the year, engaging in manœuvres relating primarily to the defence of the Hawaiian Islands and to the maintenance of the Fleet in those waters.

Another change in the disposition of naval forces in the Pacific was the reinforcement near the end of the year of the small Asiatic Fleet which throughout the year performed its normal function of safeguarding American interests in the Far East.

The Navy has been alert to the lessons of the wars in Europe and Asia, and is adapting its training and operation schedules accordingly. Naturally, the details of such matters are held secret.

PERSONNEL.

The Secretary of the Navy, the Chief of Naval Operations, and the Chief of the Bureau of Navigation pointed out in their annual reports for the fiscal year ending June 30, 1940, that the Navy was operating with a shortage of personnel, and further, that the price of such shortage should be clearly understood as unreadiness for war. However, the Secretary further reported that " In my opinion, the loyalty, morale, and technical ability of the personnel are without superior. On any comparable basis, the United States is second to none."

This shortage is being materially decreased as shown in the Navy Department's release of December 1, 1940. There has been no difficulty in obtaining the *authorised* number of men on a voluntary basis despite the fact that men are being accepted only for 6 years as against 4 years and for minority during previous years. The 6-year term is considered desirable in stabilizing enlisted personnel, since only one-sixth of first enlistments will be discharged yearly as against one-fourth with 4-year terms.

Naturally, the expansion programme has increased the requirements for officers. The shortage has been partially met by employing retired and reserve officers on active duty.

The expansion of the Marine Corps has been correlated to that of the rest of the Navy. Action is being taken to have the Marine Guard at Navy Yards replaced by a civilian Police Force, thereby releasing about 2,500 officers and men for the Fleet Marine Force which has been maintained ready for instant service with the Fleet.

MATERIAL.

The material requirements of the Naval Establishments are met by a number of major units of the Navy Department, known as bureaus. In the design, construction, and maintenance of ships, two of the most important were the Bureau of Construction and Repair and the Bureau of Engineering. On June 20, 1940, these bureaus were abolished and their functions and duties were transferred to and vested in a new bureau, known as the Bureau of Ships.

This change in the Departmental Organisation should promote efficiency and economy, especially with regard to the incorporation of new military characteristics in both old and new constructions, based on the lessons of the current wars.

Rather wide publicity was given to a statement that the ships were deficient in offensive and defensive characteristics as regards modern aircraft. While no plans as to details have been divulged, it has been stated authoritatively that this matter is being given careful consideration.

Certain Bureau Chiefs have pointed out in their annual reports and to appropriate Congressional Committees provisions of recent legislation which are delaying the procurement of material for the programme of expansion. These matters are being adjusted from time to time, and doubtless will be given priority for consideration when the new Congress assembles in January, 1941.

RESEARCH.

The Secretary of the Navy reports that the objective of our research is to build and maintain a Fleet of all classes of fighting ships of the maximum war efficiency and to make superiority in their class the end in view in their design, and that the trail of such research leads through many fields of science and engineering, ranging from machines and materials in the centre to atomic physics on one side and the life cycle of barnacles on the other.

He further reports that the programme can be roughly divided into the three headings of research, developments, and tests. The first heading concerns primarily applied rather than fundamental research, although there is a certain amount of the latter carried on concurrently with other work. Developmental investigations are directed toward the improvement of present methods and materials for the construction of naval vessels or the adaptation of available commercial products to these purposes. Tests are generally of a routine nature to determine whether material under purchase or machinery or structures in the course of construction conform to existing specifications and standards, and while this type of work is numerically predominant and indispensable, it does not constitute the most important portion of the Bureau's experimental programme.

The Chief of the Bureau of Aeronautics, which is the keystone of the Navy's Aeronautic Organisation, says under the general subject of " Recommendations " in his annual report that :—

The United States is entering a new period of intense competition in the aviation field, with emphasis on combatant aircraft ;

Important as is the necessity for accelerating production, we must not fail to realise that while we are catching up with foreign nations in productive capacity there is danger that lack of emphasis on development and experimentation may leave us with aircraft inferior to those of foreign countries which are able to concentrate on this phase.

Funds allocated for experiments and development cover not only experimental aeroplanes and engines but also vital aeroplane accessories and aeronautical material of every category ; and, it is essential that increases in facilities and funds for experiments and developments be provided, and that there be no diminution of effort in this important field.

THE NATIONAL DEFENCE ADVISORY COMMISSION.

Destined to play an important part in the national defence effort including the expansion of the Navy, is the present National Defence Advisory Commission, or some other super-organisation based upon it. The present Commission succeeds a War Resources Board which existed for a few months in 1939.

An Act of the Congress of August 29, 1916, created a Council of National Defence to assist the President in carrying out his duties as Commander-in-Chief of the armed forces of the United States. The Council consists of the following cabinet members : the Secretaries of War, Navy, Interior, Agriculture, Commerce, and Labour.

The members of the Council of National Defence nominated, and the President appointed on May 30, 1940, as members of the Advisory Commission to the Council of National Defence the following persons :—

William S. Knudson, advisor on industrial production.
Edward R. Stettinius, Jr., advisor on industrial materials.
Sidney Hillman, advisor on employment.
Chester C. Davis, advisor on farm products.
Ralph Budd, advisor on transportation.
Leon Henderson, advisor on price stabilization.
Harriet Elliott, advisor on consumer protection.

The Council prescribed rules and regulations for the operation of the Advisory Commission which the President approved on May 29, 1940.

On May 30, 1940, the Council met with the President and the other members of the Cabinet, together with members of the newly created Commission, and agreed that the Council itself would meet and act only at meetings of the Cabinet with the President, and that the Commission would deal with the Council solely through the President himself or his administrative assistant, designated by the President to have charge and direction of the office for Emergency Management in the Executive Office of the President, who also was designated as Secretary of the Council and of the Advisory Commission.

The several divisions of the National Defence Advisory Commission are proceeding rapidly with the development of their organisation and work, and frequently give out Press releases as to the progress being made.

As the year closes, there is much criticism of the Commission as being without adequate authority and responsibility in the preparedness effort. Some change seems very likely.

D. C. BINGHAM,
Captain, U.S. N. (retired).

CHAPTER VI.

THE AXIS SUBMARINE CAMPAIGN.

THE submarine was the one type of warship used by all belligerents to the fullest possible extent throughout 1940; the Germans and Italians, however, made no pretence of abiding by their undertakings, and attacked, without warning or regard to the escape of crews and passengers, all merchant ships no matter what their nationality.

PART I.—THE GERMAN U-BOAT CAMPAIGN.

The outstanding feature of the war at sea during 1940, as in 1939, was again the unrestricted German U-boat campaign, with its "sink at sight" torpedoing of belligerent and neutral vessels alike and the indiscriminate laying of mines without warning in the high seas. But although the menace had been definitely countered in 1939 and seemed to be defeated by March, 1940, eight months later, according to the Prime Minister the U-boat had become a greater menace than the bomber.

In 1939 the Nazi attack on merchant shipping had shown three well-defined phases: the first by U-boats immediately hostilities began; then, when it was apparent this had failed, concentrated mine warfare—in particular the use of the magnetic mine, often laid by aircraft—from the third week in November; and, when this was also defeated, aircraft attack, from the middle of December.

The losses of merchant shipping * during seventeen weeks of war in 1939 were:

	Losses.		Weekly Average.	
	Ships.	Tonnage.	Ships.	Tonnage.
British ...	115	421,919	6·8	24,818
Allied... ...	13	76,905	0·7	4,523
Neutral ...	80	240,404	4·7	14,141
Total	208	739,228	12·2	43,482

The convoy system was a definite success, and only twelve out of 5,911 ships convoyed had been lost, or 0·2 per cent. It was considered that half of the submarines with which Germany had begun the war (70) had been destroyed by the end of 1939.

During 1940, though in the first three months the losses fell, until in the first week of April they reached the lowest figures for the war—one British vessel of 208 tons and one neutral of 2,118 tons

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* The figures of losses are the latest official figures available on January 6, 1941.

only—all three methods of attack were later developed with greater intensity. These, combined with the occasional activity of surface-raiders—mostly armed merchant ships, though once one of the "pocket battleships"—caused the figures to reach such heights as to warrant concern and at times anxiety.

In the first week of January, 1940, six ships were sunk, of 13,514 tons. Next week the second air attack developed; fifteen ships of a total of 35,411 tons were sunk. Fourteen of these were lost in the North Sea, ten by mines and four by bombs; another was sunk by a mine off the West Coast.

It was notable that none was sunk by torpedo, which seemed to show that U-boats were finding it more and more difficult to attack their prey and the Nazis, enraged by their failure, had resorted to other and even more despicable methods of attacking inoffensive vessels, even lightships, by bombing and machine-gunning.

In the third week five British ships were lost and for the first time four by mines off the West Coast—an indication of the intensive mining campaign by U-boats outside the North Sea. Neutrals were attacked with torpedoes in areas as far apart as Spain and the Shetlands and thirteen ships were sunk.

Next week only two British ships of 3,010 tons were sunk, but there were also two French for the first time that month and thirteen neutrals. The total losses for the month were twenty British ships of 70,588, two French of 6,588, and thirty-four neutral of 90,981, a total of fifty-six ships of 168,057 tons. The curve of sinkings in January was kept up by mining losses, for the submarine figure for that month was down to 12,000 tons out of 141,379 of the tonnage.

The naval losses from submarine action during January were one trawler, the Valdora, torpedoed, and possibly two destroyers, the Grenville and Exmouth, both announced as "mined or torpedoed."

The cause of the loss of 862,358 tons of our merchant shipping, the total tonnage sunk from the outbreak of war to January 27, 1940—as announced weekly—and composed of British 478,443, neutral 307,027 and Allied 76,888 tons was given in the following table in the *Manchester Guardian* of February 2, 1940.

	British.		Neutral.		Total.	
	No. of Ships.	Tons.	No. of Ships.	Tons.	No. of Ships.	Tons.
U-boat	57	230,000	33	106,000	90	336,000
Mine	22	97,000	45	131,000	67	228,000
"Explosion" (mine or torpedo)	16	75,000	20	62,000	36	137,000
"Pocket battle-ship"	10	55,000	—	—	10	55,000
Air attack ...	16	8,000	—	—	16	8,000
Totals	121	465,000	98	299,000	219	764,000

Note.—It was remarked that, although in some cases ships were missing or sunk from some cause unknown or unstated, in the majority of cases it was possible to state definitely the cause of sinkings.

An analysis in the *Evening Standard* of February 24, 1940, of British merchant shipping losses up to February 3, showed that out of 141 vessels, 71 had been sunk in the Atlantic, 59 in the North Sea and 11 in the English Channel. Most of the losses in the Atlantic were in the first six weeks of the war, those in the North Sea, later.

The First Lord of the Admiralty, Mr. Churchill, in a broadcast on January 20, 1940, said :

> " We feel ourselves more confident day by day in our ability to police the seas and oceans and keep open and active the salt-water highways by which we live and along which we shall draw the means of victory. . . . After nearly five months of all the enemy can do against us on the sea, the first U-boat campaign for the time being is utterly broken, the mining menace in good control, our shipping virtually undiminished, and all the oceans of the world free from surface raiders."

The Foreign Secretary, Lord Halifax, in a speech at Leeds on the same evening said :

> " In spite of every breach of International Law, Germany seems to have gained astonishingly little by it. Since the convoy system has been organised, something like 6,000 ships have been convoyed to the end of December, with the loss of only twelve—one in 500."

In the first week in February British losses were eight ships of 30,630 tons and in the second, six of 27,315 tons ; the neutral losses being five in each week and Allied nil.

On February 14 it was announced in Berlin that new instructions had been given to U-boat commanders :

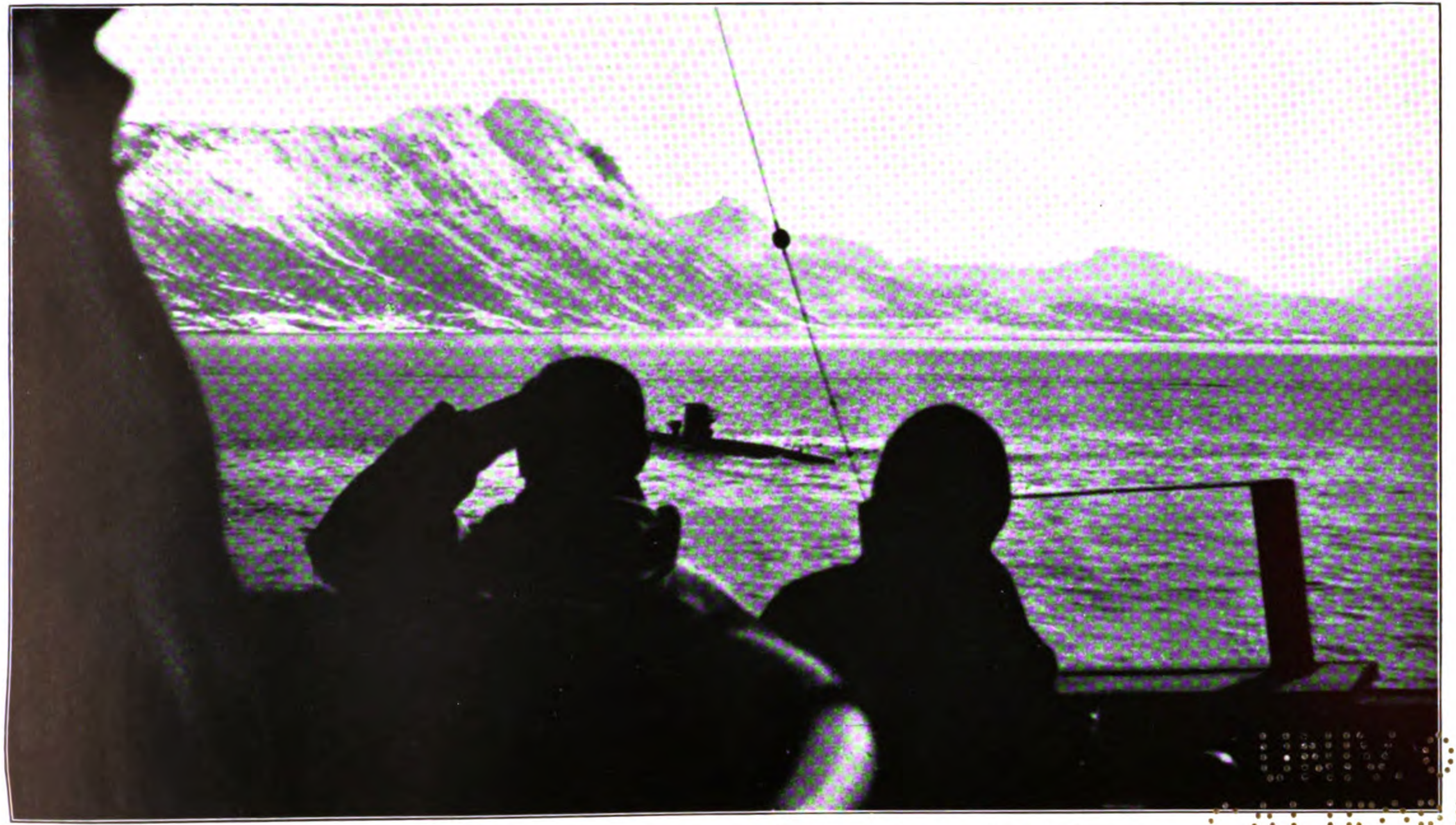
> " All neutral vessels which, to judge from their course, will have to put in at a British contraband control station . . . are to be torpedoed without further inquiry. U-boat commanders will not be required to examine the papers of ships which they sink in this way, because the nature of the cargo will make no difference to their action."

A Government spokesman at a Press conference in the Wilhelmstrasse used this new order to explain the sinking of the Dutch steamer Burgerdijk, bound from New York to Rotterdam with a cargo of grain, off Bishop's Rock four days previously. He ignored protests that the ship was carrying a cargo for the Dutch Government, that the captain had no intention of putting into an English port, and that the U-boat commander had frankly refused to examine the ship's papers.

> " The Burgerdijk could have escaped only if she had been without cargo," he said. " We could not have controlled her actions once she entered enemy controlled waters If the English want to control ships they must do so on the high seas, instead of compelling them to forfeit their neutrality by entering British ports. . . . If an American ship submitted to control at Gibraltar when bound for Mediterranean ports we should sink it if we could."

Another Nazi spokesman stated that the sinking of Dutch, Danish, Norwegian, and Swedish ships during the last few days was " in full accordance with the rules of sea warfare " and was only a prelude to an attempt by Germany to strangle the entire trade of the neutrals on world shipping routes. The mere fact of steering a zigzag course was also stated to be grounds for immediate torpedoing.

Next day it was announced in Berlin that Germany would henceforth conduct " unrestricted U-boat warfare against British and French ships " . . . as " a result of Mr. Churchill's statement that all Allied ships in future would be armed." This new threat of



The destruction of a U-boat in a Norwegian fjord, seen from a British destroyer.

(Central Press photograph.)

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unrestricted U-boat warfare had little or no effect on British losses during the next three months—in fact they went down to practically nothing at the end of March. But neutral losses in the third week of February went up to eighteen ships, which with six British and one Allied gave a total of twenty-five and 109,903 tons, the highest since the outbreak of war. Thirteen out of fifteen of the neutrals sunk were sent to the bottom by U-boats without warning.

Admiral of the Fleet Lord Chatfield, Minister for Co-ordination of Defence, speaking at Cardiff on February 17, 1940, on Germany's unrestricted warfare against unarmed merchant ships said:

> " This practice of murder on the high seas is a typical German invention, never heard of, except by pirates and buccaneers, before Germany had a Navy. . . . There is the indiscriminate sinking of neutral ships—a grisly tale—119 such ships have been sunk, totalling nearly 350,000 tons, of which nearly half have been torpedoed."

The success of the U-boat campaign against neutrals was fortunately not maintained and for several weeks afterwards the number sunk was much lower. In fact the U-boat was far from having things all its own way. On February 20, when the Admiralty announced the third week's losses, it was stated that in six days in the previous week four U-boats were certainly sunk by the Navy, while at least two others were believed to have been sunk either by the Navy or the Air Force.

During the fourth week of February, British losses were five ships of 22,322 tons, but as the neutral figure was only two—the lowest for eight weeks—the total tonnage was down to 30,922 tons.

The total losses for the month were: British twenty-five vessels of 126,961, Allied one of 3,754, and neutral thirty of 94,840 tons, a total of fifty-six ships—the same as in January—of 225,555 tons.

The only naval loss from U-boat attack announced during February was one destroyer, the Daring, torpedoed.

The losses from magnetic mines had steadily declined since the fitting of the degaussing girdle. To counter this reduction, which they must have foreseen as the result of our rapid success in producing and developing an antidote, the Nazis apparently ordered an intensive effort by U-boats in February. A sharp rise in tonnage-loss from U-boat attack followed.

The steep decline in the total losses during the fourth week in February, which resulted in the lowest figure for seven weeks, appeared to indicate that, after a big effort, those U-boats at sea had shot their bolt. It also seemed that there were not many others available to relieve them and thus continue the pressure.

The loss of life in the Merchant Navy and fishing fleets through enemy action in the first six months of the war was given in a list issued by the Ministry of Shipping on October 28 as 925 officers and men from 111 ships.

The French Minister of Marine, M. Campinchi, in a statement on March 6, describing the results of six months of warfare in so far as the French naval forces were concerned, stated that:

> " The share of neutrals in the total destruction of merchant tonnage was September, 18·5; October, 25; November, 59; December, 41; January, 50; and February, 46 per cent. The average was 38 per cent. and the proportion of neutrals tended to

increase. Such severe losses, together with the loss of life suffered at Germany's hands, far outbalanced any inconvenience imposed by the Allied blockade. Not a single vessel had been destroyed by Allied action."

Mr. Churchill, in introducing the Navy Estimates in the House of Commons on February 27, 1940, dealt with the Nazi attempt to counter-blockade Great Britain.

> "In their attack upon our shipping and neutral shipping," he said, "the Germans have broken every rule hitherto accepted by the world for the regulation of mining warfare. . . . So execrable has been the behaviour of some of the German aviators in attacking harmless, unarmed vessels, in machine-gunning their crews . . . that we have had to set about arming all our . . . small craft with the means of defending themselves. . . . Thousands of guns . . . are being issued to our merchant and to our fishing fleets. The Nazis have retorted by saying that this entitles them to break all the conventions which they have already broken many times over. . . . I suppose the House realises that Herr Hitler and his Nazis have quite definitely exceeded the worst villainies which Imperial Germany committed in the late war. . . .
>
> "Where then do we stand at the end of the first six months of war? We have lost 63,000 tons of warships or about half the losses of the first six months of the last war. We have lost on the balance of loss and gain less than 200,000 tons of merchant shipping taking new building and prizes on the one side, out of a total of 21 million of all types or 17½ million in ocean-going shipping. . . . This figure of less than 200,000 tons in six months may be compared with 450,000 tons nett loss in the single deadly month of April, 1917. . . .
>
> "In January the Navy carried safely into British harbours, in the teeth of the U-boats, of the mines, and of the winter gales and fog, considerably more than four-fifths of the peacetime average taken over the whole, summer and winter alike, of the three preceding years. . . . Our exports . . . were equal in December and January to our exports . . . in those months of the last peacetime year of 1938."

The Civil Lord of the Admiralty (Captain Austin Hudson) stated:

> "The convoy system has been outstandingly successful. The last figures . . . are rather striking. Out of 10,097 ships, 10,076 have been brought safely to their destination. . . . It works out at one-fifth of 1 per cent. . . . Of merchant ships . . . of 500 tons and above the number which has been armed is 1,920 out of 3,125 . . . and the rate is being accelerated every week. . . ."

In the first week of March eight ships were sunk of a total tonnage of 21,231. In the second week for the first time no Allied or neutral ship was sunk, but the six British ships totalled 19,316 tons.

The Germans were remarkably inactive both under and over the sea during the third week as far as merchant shipping was concerned. Nine vessels of 23,992 tons were sunk. Most of the casualties were due to mining, in unnotified areas. Only four ships had been sunk by U-boats in the three weeks since February 24. In disclosing the fact the Admiralty weekly statement attributed this to "those U-boats which may have escaped destruction having presumably withdrawn to rest and recover their shattered nerves," and it was unofficially considered that the recent low number of sinkings was evidence that severe losses had been inflicted on enemy submarines.

In the fourth week, for the first time since hostilities began, it was announced that no British or Allied ship was sunk by enemy action.

German savagery at sea was at this time being vented almost exclusively on neutral ships, chiefly Danish. Nine neutrals of 16,763 tons were sunk during the week, including one Italian, a total tonnage of 22,202.

In the fifth week of March there was only one British loss, a tanker of 5,742 tons, and three neutrals, a total of 13,901 tons. This was the lowest figure for the three months since the first week of the year. The totals for March were, British thirteen ships, Allied three, and neutral twenty-one, totalling 100,642 tons. Although a five-week month this was the lowest monthly loss for the year.

There was growing evidence, according to naval authorities, that U-boats were being sunk faster than the Germans could replace them, and there were indications that the U-boat building programme had not come up to expectations. In addition the few U-boats that were still hovering about the shipping lanes apparently did not care to attempt an attack on ships in convoy and no longer willingly risked attacking British merchantmen, most of which were defensively armed. It now seems possible that U-boats had been withdrawn from overseas in readiness for the impending Norwegian campaign and the invasion of other neutral countries.

Whatever the cause, the first week in April provided the lowest Nazi total bag of shipping for the sixty-nine weeks of the war to the end of 1940. The Aberdeen trawler Gorspen, 208 tons, was sunk by bombs on the North Sea fishing grounds, and one Norwegian, the collier Navarra, torpedoed without warning by a U-boat.

On April 9 Germany invaded Denmark and Norway, and a month later Holland and Belgium. The Nazi naval operations in Norwegian waters for two months and the Allied evacuations from the Lowland and French coasts naturally had their effect on the U-boat attack on overseas seaborne trade.

Merchant shipping losses in the second week of April were twenty-one ships of 76,839 tons. The third week's losses were at first announced as only three ships, all British, and totalling 11,352 tons. One had been sunk by a U-boat in the North Sea and the other two by mines off the south-east coast. Later four more losses for the week were announced, making the total for the week 30,487 tons.

The losses for the fourth week in April were ten ships of 23,917 tons. The total for the month was 40 ships and 133,569 tons.

During the month of May few U-boats appeared to be out and during the first three weeks British losses were small. In the first week of May three ships of 13,785 tons were sunk—the lowest weekly figures but one in the seventeen weeks of the year. The next week fifteen ships totalling 73,984 tons were sunk. In the third week of May for the second time in the war there was no British shipping loss. Allied and neutral losses were seven of 45,672 tons. The following week British losses were three small vessels of only 1,569 and the same number of Allied and neutral ships, a total of 29,906 tons.

During the last week in May for the first time in three months U-boats were again operating in the western approaches to the Channel, and activity off Cape Finisterre was also an indication of the beginning of fresh attacks on our shipping. It was apparent that a renewed effort was being made and this in turn indicated that new U-boats and new crews had replaced the heavy losses the flotillas had suffered during the earlier months of the war.

During the fifth week in May, fifteen ships were sunk totalling 81,080 tons—the second highest figure to date.

The monthly figures for the five weeks were: British nineteen of 79,957 tons, Allied seventeen, and neutral thirteen, giving a total of 244,427 tons.

At the end of May Germany issued a warning to the world that she was about to restart U-boat warfare. She gave a special warning to neutrals not to enter the protection of British convoys, yet on the same day provided an unfortunate example of what would happen to neutral ships out of convoy by sinking the Argentine ship Uruguay by U-boat.

SHIPPING PROBLEM INCREASED.

During June two events occurred which had a profound influence on the enemy attack on our shipping: on June 10 Italy declared war on Great Britain and France, and on June 25 France capitulated. The first event threw some 118 Italian submarines into the war against us—though only some were overseas vessels—and the second caused the larger proportion of the valuable French convoy escorting ships and submarine hunting vessels to be withdrawn from the common task. The evacuation of Dunkirk ended on June 3 and the final withdrawal from Norway was made on June 10. These events gave the Germans control of the coast of Europe for the 2,000 miles from the North Cape to the Pyrenean frontier of France. As was to be expected our shipping losses rose to the highest figures so far for the war.

During the first week of June losses were fifteen ships of 42,752 tons—little more than half the losses of the previous week.

The second week of June was the first of Italy's participation in the war which no doubt necessitated diverting to her the attention of a number of our anti-submarine craft—to very good purpose, however. As our through Mediterranean traffic had been diverted round the Cape the action taken by our new foe was comparatively insignificant. Most of the losses were due to German submarines and aircraft, but the intensification of attack by the former was mainly directed against Allied and neutral vessels the loss of which was much higher than in previous weeks. The British losses were eleven vessels of 53,906 tons, and with nine Allied and six neutral the total weekly loss became 115,990 tons—a new high figure.

The French plea for an armistice, and the consequent withdrawal of many of our escorting and hunting vessels from anti-submarine work for the protection and evacuation of British and Allied troops from France, disturbed our normal convoy and escort arrangements for merchant shipping. In addition, apparently there was an increase in U-boat activity, mainly in the western approaches and notably in the Bay of Biscay, no doubt because of the known preoccupation of our forces elsewhere.

The losses for the third week in June were thirty-two ships of 150,110 tons. There was a marked drop from this high total in the figures for the last week in June—fifteen ships of 63,336 tons—less than a half of the previous week's figure. The monthly totals were thirty-five British ships of 165,010 tons, twenty-six Allied and twenty-seven neutral, totalling 372,188 tons.

Naval losses from submarine torpedoes during the month of June were one cruiser, the Calypso, sunk in the Mediterranean by an Italian submarine, and three armed merchant cruisers, the Carinthia, Scotstoun, and Andania.

The four weeks' losses for the month of July were British fifty-four ships of 224,421 tons, Allied thirteen, and neutral nineteen—totalling 327,809 tons.

On July 16 the Admiralty announced the number of ships lost in convoy for the last time. It was only forty-seven in forty-four weeks. The number convoyed was not given but a week previously out of 27,247 ships convoyed only forty had been sunk from all enemy causes—one in 681.

Naval losses from submarine torpedoes during the month were two destroyers, the Whirlwind and Escort.

The Admiralty on August 16 announced the total number of naval vessels and the amount of merchant shipping tonnage lost during the war and that claimed by the Germans to have been sunk and seriously damaged. The total naval losses were forty-seven of which number forty-one were destroyers and submarines, but the Germans claimed 269—over six times as many. The actual merchant shipping losses of British, Allied, and neutral tonnage—including all vessels taken up for Government work as transports and supply ships, but not vessels commissioned as men-of-war, such as armed merchant cruisers—totalled 2,514,199 tons. The Germans claimed to have sunk 5,078,038 tons—over double the real figure.

A week previously (August 8) the Admiralty had announced detailed statements from prisoners of war rescued from U.13—which was sunk by British naval forces—and the actual facts to show how the German High Command arrived at its greatly exaggerated claims of British merchant ship losses. In one cruise U.13 claimed to have sunk 22,000 tons of shipping. The fact was she had sunk only one ship of 4,935 tons.

A new threat of the " total blockade of England " was announced in an official statement published in Berlin on August 17. It claimed that as " England has broken all the international rules of sea warfare " the German High Command will henceforth use all means at its disposal for enforcing " a complete blockade of the British Isles."

This attempt at " blockade by bluff " puzzled many Governments because it was simply a repetition of the threat made nine months earlier (November 28) when a Nazi official said " Germany must resist the British blockade with all means at her disposal—with U-boats, mines, and aeroplanes. This resistance will continue until no British or neutral ship dares to enter or leave a British port."

The only inference to be gained from all this pretentious verbiage was that after a year the Nazi attempt at the blockade of Britain had failed. For that which they said they would attempt to do they had been doing throughout the war. Another puzzle was why the Nazis should have made a declaration of long-term policy at a time when their propagandists were announcing the speedy destruction of Britain.

Three days later (August 20) Italy followed the German lead by ordering the "blockade" of British possessions in the Mediterranean, Africa, Red Sea, and Gulf of Aden—a "blockade" she was in no position to enforce.

The Prime Minister (Mr. Churchill) in a comprehensive survey of the war and analysis of the operations so far in the House of Commons on August 20 said:

> "The seas and oceans are open. The U-boats are contained—the magnetic mine is mastered. The merchant tonnage under the British flag, after a year of unlimited U-boat war, after eight months of intensive mining attack, is larger than when war began. We have in addition four million tons of shipping from the captive countries which has taken refuge here in the harbours of the Empire."

The month of August was notable for the development of massed attacks on our shipping by Nazi aircraft—in which the enemy lost a number of machines—and jointly on occasions with E-boats (motor torpedo boats) on our English Channel convoys. It was also notable as the first month in a year of war in which a British transport was torpedoed—the Mohamed Ali El-Kebir, announced on the 11th. She was attacked at night in the Atlantic, but 740 of the 860 troops and naval ratings on board were rescued and landed at a Scottish port.

In spite of the new development in aircraft attack the number of British ships lost in the five weeks of August was on an average about the same as in July, i.e. thirteen, but the average tonnage went up to 64,778. The actual figures were: British sixty-seven ships of 323,894 tons, Allied eleven, and neutral eighteen ships, making a total of 419,394 tons. The third week's losses, British twenty ships of 108,404 tons, Allied one, and neutral two ships, giving a total of 118,814 tons, were the highest number of British ships and tonnage and total tonnage for the first twelve months of hostilities.

TWELVE MONTHS' LOSSES.

The total merchant ship losses and weekly averages for the first year of the war, up to September 1, were:

	Losses.		Averages.	
	Ships.	Tonnage.	Ships.	Tonnage.
British ...	409	1,625,442	7·9	31,258
Allied ...	105	488,778	2·0	9,400
Neutral ...	257	784,074	4·9	15,078
Total ...	771	2,898,294	14·8	55,736

The losses of crews and passengers from British, Allied, and neutral merchant vessels were given by the First Lord of the Admiralty (Mr. A. V. Alexander), on November 13, in the House of Commons as: Lost 3,327, saved 15,636, and taken prisoner or interned 1,000.

The naval losses from U-boat attack during August were two armed merchant cruisers, the Transylvania, which was torpedoed at night and afterwards foundered in a rough sea, and the Dunvegan Castle, torpedoed and subsequently sunk. The total naval losses from submarine attack for the first twelve months of the war were: One battleship, one aircraft carrier, one anti-aircraft cruiser, five armed merchant cruisers, six destroyers, and one trawler, total fifteen. Two of the destroyers were announced as sunk by " mine or torpedo " and may not have been due to submarine attack.

The shipping losses in the last seven months of 1940 from June when the total number of ships lost in a month went up to eighty-eight—nearly double the average for the first five months—and the fluctuations in numbers of British, Allied, and neutrals are best shown by the following table in which August and November are taken as five-week months.

	British.		Allied.		Neutral.		Total.	
Month.	Ships.	Tonnage.	Ships.	Tonnage.	Ships.	Tonnage.	Ships.	Tonnage.
June	35	165,030	26	110,747	27	96,411	88	372,188
July	54	224,421	13	42,852	19	60,536	86	327,809
August (5 weeks) ...	67	323,894	11	39,432	18	56,068	96	419,394
September	59	304,928	15	56,199	13	42,870	87	403,997
October	59	252,754	16	62,042	12	46,630	87	361,426
November (5 weeks)	72	331,031	17	74,592	4	15,068	93	420,691
December	47	198,001	10	48,112	5	13,222	62	259,335
Total	393	1,800,059	108	433,976	98	330,805	599	2,564,840

German submarines at this time achieved further notoriety by torpedoing in the Atlantic ships carrying children to Canada. On August 30 the Dutch liner Volendam with 320 British children on board was torpedoed but fortunately all were saved with the exception of the ship's purser. The Volendam was subsequently towed into a British port. On September 17 the City of Benares was torpedoed at night without warning during a storm in the Atlantic 600 miles from land. Altogether 248 lives were lost, including seventy-nine out of ninety-eight children. This foul deed aroused, except in the Axis countries, the horror of the world.

The losses in the third week of September were the highest to date, thirty ships of 176,135 tons. Those high losses were officially stated to be due principally to submarine activity and were the heaviest that U-boat attacks had yet inflicted on Britain. They were, perhaps, due to the most skilful of the U-boat commanders being at sea during that period. In the last war twenty individual U-boat commanders out of over 300 were responsible for one-third of the total depredations.

How much of the increased losses was due to Italian submarines operating in the Atlantic was not known. There was however no doubt that the Nazis had called on the Italians for submarine reinforcements to work in the Atlantic, and this gave a clear indication that their own numbers were not sufficient to maintain the necessary pressure against our convoys.

When these heavy losses were announced the Admiralty added :

> " The enemy has recently been having a greater measure of success in his U-boat attacks on merchant shipping than during the earlier stages of the war. This was to be expected after the collapse of France and the German seizure of the French Atlantic ports. U-boats operating from these ports are able to spend a longer time on the ocean trade routes than U-boats operating from the ports of Germany. As has been the case during previous periods of U-boat activity, losses have been inflicted on the enemy. During the last few weeks seven German U-boats and two Italian U-boats have been sunk by our naval and air forces. Others have been damaged."

As often occurred when U-boats had shot their bolt after a particularly intensive period of attack, the following week's losses were down to less than half the previous figure.

The naval losses from submarine action during September were two sloops, the Penzance and Dundee, torpedoed, and possibly two destroyers, the Esk and Ivanhoe, both announced as sunk by "mine or torpedo."

During the first week in October the shipping losses were further reduced to the lowest figure during the twenty-two weeks since May 5—twelve ships of 40,315 tons. But the following week there was an increase to seventeen ships of 84,749 tons. In the third week the losses soared to the peak of forty-eight ships of 212,984 tons. These figures were the highest for the sixty-nine weeks of the war to the end of 1940. Such high losses were undoubtedly grave and had they continued at anything like this height would have made serious inroads into our shipping strength. But this success was undoubtedly due to a large concentration of U-boats under the most skilful commanders over a period of five days. After this effort convoys had arrived without having been attacked, which suggested that the enemy's success in the period under review was exceptional.

The following week, as was usual after a period of intensive attack, the losses showed a large and welcome drop, totalling only ten ships of 23,378 tons. These sinkings were the lowest for twenty-five weeks. The previous week it had been stated that special measures were being taken and it appeared that these were achieving some success—in fact except for one week, when the figure was little more than half the highest total, the losses were considerably lower for the remainder of the year.

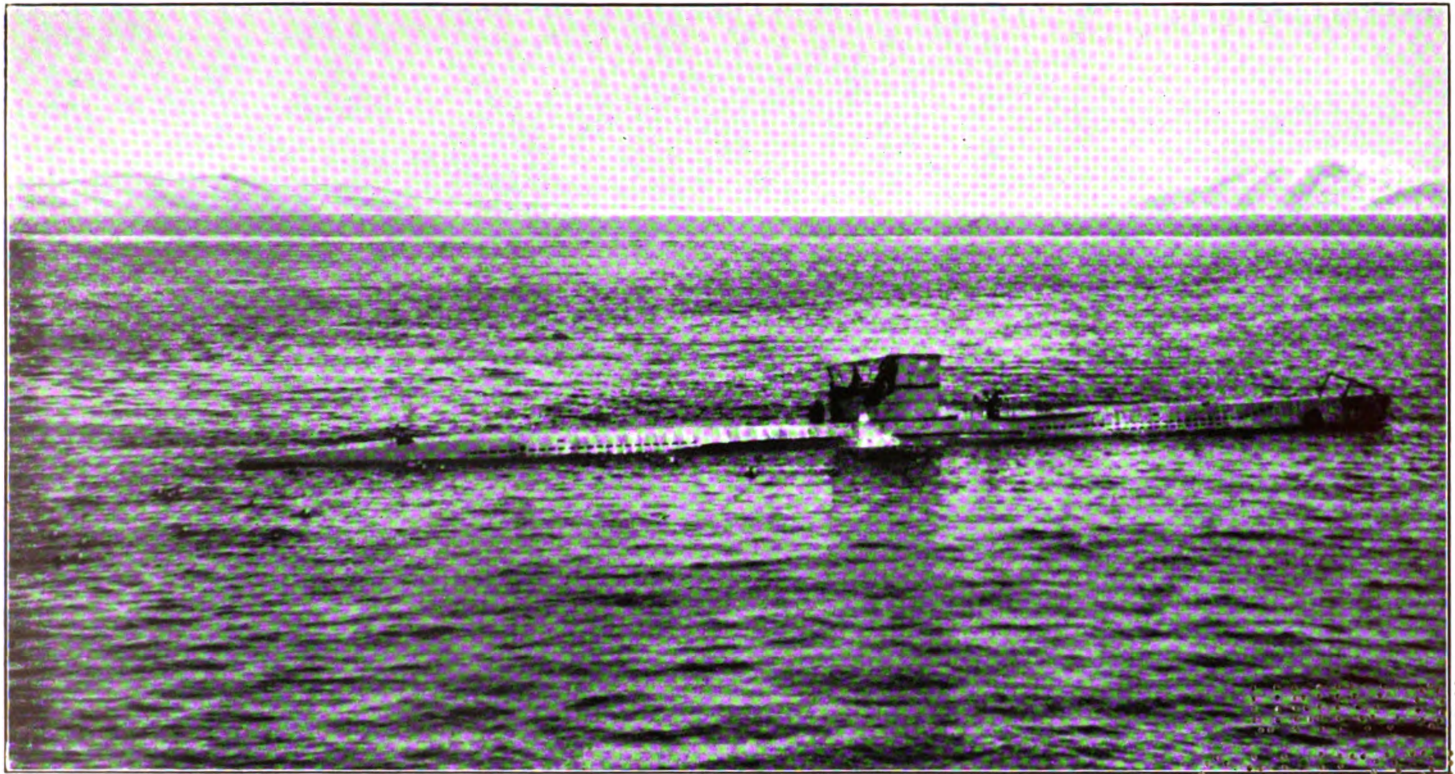
The only naval loss from submarine action announced during October was one trawler, the Kingston Sapphire.

During the last week in October Nazi aircraft scored their first, in fact only, success of the year against a large British liner—the far-famed Empress of Britain. Bombed on the 26th, while east-ward bound, 150 miles off the Irish Coast, she was set on fire and had to be abandoned. Taken in tow by salvage tugs she was, however, torpedoed by a U-boat two days later and sunk. The Germans claimed that this submarine was commanded by Lieutenant Jaenisch, but their jubilation was short-lived for on November 5 the Admiralty announced that the U-boat he commanded had been sunk.

On November 4 the Admiralty announced that two armed merchant ships, H.M.S. Laurentic and Patroclus, had been torpedoed and sunk. The German High Command claimed that one U-boat, commanded by Lieutenant-Commander Kretschmer, had sunk both vessels. The Laurentic had been struck first and abandoned. Her distress signal brought the Patroclus to the scene and while rescuing survivors she was also torpedoed. Not content with sinking the ships in mid-ocean the U-boat also shelled the lifeboats.

An Admiralty communiqué next day stated :

> "The sinking of two armed merchant cruisers, coming as it has so shortly after the sinking of the Empress of Britain, constitutes a heavy loss, but although it is unusual for the Admiralty to publish the regular sinkings of U-boats they are able to state that two German U-boats were sunk during this period, one of which was the U-boat responsible for the sinking of the Empress of Britain."



The destruction of a U-boat in a Norwegian fjord. The crew abandon ship as she sinks, as seen by British troops about to land in Norway.

(Central Press photograph.)

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CALIFORNIA

The Prime Minister in the House of Commons that day, in a comprehensive review of the recent development of the war in all its aspects, said: " More serious than the air raids has been the recent recrudescence of U-boat sinkings in the Atlantic approaches to our island " and he stressed the heavy and grievous burden of not having the use of bases on the south and west coasts of Ireland to refuel our flotillas and aircraft. He also stated that in the last month we had been at the lowest point of our flotilla strength, owing to other demands. However, this period of stringency was passing with the fifty American destroyers rapidly coming into service and the main flow of new construction started at the outbreak of war. In spite of serious losses, we still had very nearly as much shipping tonnage as at the outbreak of war and a great deal of neutral tonnage was under our control.

In November the first week's shipping losses included the Empress of Britain (42,348 tons), otherwise the British figures would have been twelve ships of 23,261 tons, and the Allied four, totalling 28,664 tons. The second week's figures were seventeen ships of 96,384 tons. These figures, however, were swollen by the inclusion of the four British ships of 25,453 tons, sunk by the German surface-raider's attack on the Jervis Bay convoy. The losses during the last three weeks of November were first below, then above, and finally below the average, for the whole period of the war.

On December 11, Lord Strabolgi, an ex-naval officer in the House of Lords, called attention to the shipping losses. Lord Templemore, who replied, said:

> " Nobody would deny that the losses of British, Allied, and neutral shipping since the downfall of France have been very serious. At the same time . . . it is well that their seriousness should not be exaggerated. Comparisons have recently been made between the present time and early in 1917, when the shipping losses reached such enormous proportions. I think there is danger in making a comparison with 1917 loosely without reference to the actual figures. Now in only one month of the last six months has the monthly total of losses exceeded the average figure of the whole twelve months of 1917, and the average for the months June to November of this year is 120,000 tons less than the monthly average in 1917. The figure for November shows a decided drop on the previous three months and is indeed over 100,000 tons lower than the figure for the month of October. . . . Our Air Forces have been continually bombing these U-boat bases and aerodromes. . . . Substantial increases are being made in the forces under the Coastal Command so that the Royal Air Force may play an even more important part than it has hitherto done in trade protection."

A new development in the enemy submarine campaign occurred on December 21 when the tanker Charles Pratt, owned by the Standard Oil Company of New Jersey, registered at Panama, and manned by an American crew, was twice torpedoed. She was carrying oil from the Dutch West Indies to Freetown, Sierra Leone, and was sunk off the West Coast of Africa by a submarine whose nationality was not disclosed.

During the first week in December the total losses again went up to the comparatively high figure of twenty-nine ships and 128,352 tons—although this was only two-thirds of that for the highest week. It was officially stated that the losses were not entirely due to submarine attack and that a fair proportion of them occurred on one particularly bad day.

DECLINE IN LOSSES.

The second week's total losses were down to seven ships only of 41,476 tons—the lowest for eight weeks. In the following week the total number of ships rose by twelve to nineteen, but the tonnage by less than 10,000 to 51,951 tons. During the last week in December the total losses fell to seven ships of 37,556, of which three only were British of 18,208 tons and four Allied. This was the lowest tonnage lost for nine weeks and the third week in succession in which the losses had shown a very substantial decline on previous prevailing levels.

The only naval loss from submarine action during December was one armed merchant cruiser, the Forfar, torpedoed.

The total merchant ship losses and weekly averages for the fifty-two weeks of 1940 to December 29, were :

	Losses.		Weekly Average.	
	Ships.	Tonnage.	Ships.	Tonnage.
British ...	531	2,290,237	10·2	44,043
Allied ...	150	652,818	2·9	12,554
Neutral ...	211	661,460	4·0	12,720
Total	892	3,604,515	17·1	69,317

The figures of 1917, when the U-boat campaign was probably as far developed as in 1940, provide interesting comparisons. The total losses in the year were then 6,235,878 tons, or nearly twice as much as in the twelve months of Hitler's war. During the worst month, April, 1917, they were 881,027 tons. In November, 1940's worst month, they were less than half that figure. The lowest month in 1917 was November, with 289,212 tons. In March, 1940's lowest month, the total was only 100,642 tons. Weekly averages were 120,000 tons in 1917, and 69,317 in 1940.

The total losses and weekly averages for the sixty-nine weeks of the war, to December 29, were :

	Losses.		Weekly Average.	
	Ships.	Tonnage.	Ships.	Tonnage.
British ...	646	2,712,156	9·4	39,306
Allied ...	163	729,723	2·3	10,576
Neutral ...	291	901,864	4·2	13,070
Total	1,100	4,343,743	15·9	62,952

Although high, these figures were nothing like those the Nazis expected. Hitler, with the U-boat success of 1917 in mind, calculated that seaborne trade would be overwhelmed by lightning U-boat attacks and tonnage sunk at a rate of 2,000,000 a week. Actually only one-eighth of that amount had been sent to the bottom.

The warship losses from both German and Italian submarines during 1940 were : One anti-aircraft cruiser, eight armed merchant cruisers, two sloops, seven destroyers—of which four were announced as sunk by " mine or torpedo " and some of these may not have been due to submarine action—and two trawlers. Total, twenty.

The warship losses from submarines in the four months of 1939 were one battleship, aircraft-carrier, and destroyer, and three other vessels, a battleship, cruiser (" mine or torpedo "), and destroyer were torpedoed but survived. This gave six possible hits for German submarines. Compared with 1939, however, the losses in 1940 were higher, but three-quarters were armed merchant cruisers and destroyers. No successes were announced against the large and important units of battleship and aircraft-carrier. The total known losses of warships from torpedoes in the sixteen months of the war up to the end of 1940 were twenty-three, and even this figure may well be subject to reduction by one or more of the four " mine or torpedo " casualties.

PART II.—THE ATTACK ON U-BOATS.

In the offensive against U-boats the year 1940 opened favourably, for Allied anti-submarine measures had proved three times as effective as in 1917–18. Mr. Churchill had stated in Parliament two months earlier that the sinkings of U-boats, at a conservative estimate, were between two and four a week according to the number at sea and later that " the destruction . . . is proceeding normally . . . at a rate superior to . . . the German power of replacing U-boats and competently trained crews." By the end of 1939 it was considered that practically half the U-boats built and building at the outbreak of war and expected to be completed by the end of the year (101) had been destroyed.

On January 15, 1940, an aircraft of the R.A.F. Coastal Command effectively bombed a U-boat in the North Sea. The submarine " crash-dived," but a salvo of bombs was dropped close to her, oil and bubbles of air came up over a large area and no further sign of the U-boat was seen.

Germany's propaganda organisation made a queer admission in a Frankfurt broadcast next day. In a satirical sketch a " British soldier " rejoiced because " we had sunk all the German submarines." The number was given as seventy. At this point the compère of the sketch broke in and remarked: " We need not pay any attention to Churchill's tall stories. . . . They say they have sunk seventy. If they said thirty-five we should be a bit nearer the truth."

On January 19 the *Voelkischer Beobachter* announced the death of Lieutenant Friedhelm Meschenmoser, aged twenty-four. Apparently this revealed the loss of a U-boat which had not been made public since it indicated that after long anxiety over his death " it is now certain that he died the death of a soldier and a seaman." No losses of submarines had been announced to the German people since October, and this admission would not be good propaganda for relations of other men overdue in U-boats.

On January 30 a U-boat attacked a convoy—the first of such attacks for some time—and sank the British tanker Vaclite. The naval escort immediately hunted the submarine and counter-attacked with depth charges. After a time contact was lost, but later a flying-boat of the R.A.F. Coastal Command joined in the search and found the submarine proceeding on the surface, apparently unable to dive owing to damage from depth charges. A heavy bomb was dropped on the starboard side of the submarine. Her anti-aircraft gun's crew opened fire and the aircraft replied with machine-gun fire. The aircraft proceeded to inform the warships of the position of the submarine, but when they arrived she had sunk. Some survivors were rescued and thus the fate of this U-boat was not in doubt.

The German Admiralty was reported on January 31 to have admitted the loss of thirty-two U-boats.

The French Minister of Marine, M. Campinchi, speaking in Paris five days later (February 5), estimated that out of fifty-three U-boats which had put to sea at the beginning of the war, at least forty had been sunk.

The Admiralty announced on February 9 that two U-boats which had attacked a convoy in succession were both sunk by one British destroyer. Never before had one ship sunk two U-boats in a day. A week later the destroyer was stated to be the Antelope, commanded by Lieutenant-Commander R. T. White, who was awarded the D.S.O.

An Admiralty announcement on February 14 stated :

> "Three large British merchant ships, namely, the Gretafield, 10,190 tons, the British Triumph, 8,501 tons, and the Sultan Star, 12,306 tons, have been sunk, but two U-boats concerned have also been destroyed."

The Sultan Star, understood to be the first meat ship lost in the war, was torpedoed and sunk by a U-boat without warning in the Bay of Biscay. The submarine, however, survived her victim for only half an hour. A wireless S.O.S. immediately brought a destroyer to the scene which sank the submarine with depth charges.

On February 16 an aircraft of the R.A.F. Coastal Command bombed and possibly destroyed a U-boat in the North Sea. A French warship also attacked a U-boat at sea; however, the authorities were not able to say positively whether she had been sunk. It was considered that six U-boats might have been sent to the bottom in one week—four by the British Navy, one by the French, and one by an R.A.F. aircraft.

Next day *The Times* stated that "About forty-five German submarines are known to have been sunk by the Allied Navies since the war began."

Reports of the possible destruction of three more U-boats were received in London on February 23—two having been bombed by R.A.F. aircraft in the North Sea, but these were not confirmed. Another U-boat was sunk or badly damaged by the Hull steamer Asiatic off the north-east coast of Scotland, as the result of being rammed when surfacing by moonlight.

The French war communiqué of February 27 announced that the destroyer Simoun had rammed and sunk a U-boat. While cruising off Cape Finisterre a periscope was sighted. Full speed was ordered and depth charges dropped. Turning round, the periscope was again sighted and the submarine was rammed, several feet of the destroyer's false keel being torn away. Further depth charges were dropped and an oil patch 8 miles long marked the submarine's grave.

Mr. Churchill on that day dealt with the attack on U-boats in the House of Commons in his speech on the Navy Estimates. He stated :

> " I believe it is safe to say that, by the end of 1939, the Germans had lost, from all causes, at least half the U-boat fleet with which they began the war. If we put that fleet at seventy, this would leave them thirty-five. On the other hand, I was in error when some months ago I told the House that the rate of German new building of U-boats must be counted at two per week. This and even more may be true in the future ; but it was not true up to the end of 1939. I doubt very much whether even ten fresh U-boats came into action in that period. Thus, the enemy may have ended the year with about forty-five U-boats, of which, of course, twenty would be required for training, leaving perhaps twenty-five for active operations. As these would work in two or three reliefs, the number at any one time cannot be very large. Indeed, our calculations show that it has probably not exceeded ten operating at any one time. This figure must be compared with the figure of sixty all operating together which on three occasions marked the high peak of the great U-boat campaign which we wore down and broke in 1917.
>
> " We are getting an increasing number of U-boats . . . and we have had some quite exceptional weeks of proved results. . . . We do not make announcements of U-boat sinkings unless there are some features of special interest. We leave them wrapped in mystery . . . actually in the last two days there were one certain and two almost certain U-boat sinkings. Hitherto we have been fighting with the very modest number of destroyers we had ready at the beginning of the war, supplemented by several hundreds of other small craft . . . but all armed with the Asdics, with the depth charge, and the gun. But with the passage of the summer . . . we expect to meet new U-boats with our very large new building of craft specially adapted to their destruction.
>
> " The U-boat has been steadily driven from using the gun, with all its great advantages of speed upon the surface, into the more ruthless but less effective warfare by the torpedo ; and it has been largely driven from using the torpedo to the laying of mines, magnetic and others, in the approaches to our harbours."

On March 4 an R.A.F. reconnaissance aircraft bombed a U-boat in Schillig Roads, Cuxhaven, scored a direct hit between the conning tower and stern and was believed to have destroyed her. A week later an aircraft of the R.A.F. Bomber Command, while on a reconnaissance flight, attacked a U-boat at the mouth of Schillig Roads and scored a hit just before the conning tower. Another hit was believed to have been registered and the submarine destroyed. The two pilots were decorated for these exploits.

On March 27 submarine U.21 went ashore off the south coast of Norway, near Mandal in the Skaggerrak. The Germans claimed that the cause was rough sea and damage and that the submarine should be released. The Norwegians, however, contended that the real cause was an error in the navigation of the boat and interned her. Although the U.21 normally carried only twenty-three men, she had a crew of between forty and fifty on board when she ran aground. The captain was aged about twenty-five or twenty-six, but the remainder of the crew was almost without exception under twenty years of age. It was believed in some quarters that the U.21 was being used for training.

On March 28 the B.B.C. in their German news broadcast stated that the morale of the U-boat crews appeared to be deteriorating. Two U-boats recently surrendered after attacks with depth charges. Prisoners revealed some animosity between officers and crew and general dissatisfaction with the war.

At the beginning of April it was considered that the Allies were sinking U-boats at such a rate that Germany was finding it difficult to build new ones sufficiently quickly to replace them. Certainly the crews were not experienced men because a naval authority stated that the prisoners taken from U-boats were exceptionally young, the average age of their seamen being twenty to twenty-one, and even the petty officers were about twenty-four.

On April 6 the French Minister of Marine, M. Campinchi, claimed twenty-three U-boat victims for the French Navy.

In the Norwegian campaign, which began on April 9 with the German invasion, a number of U-boats were sunk, as well as other enemy vessels and supply ships, and there was a marked reduction in the submarine attack on shipping elsewhere. On the first day the destroyer Zulu sank a U-boat off the Orkneys and the First Lord (Mr. Churchill) in his review of the naval campaign in the House of Commons on April 11 declared that the German Fleet had "sustained the most grievous losses," been "crippled in important respects" and "lost several U-boats."

The fate of a U-boat which on April 15 was lying in wait for British troopships in a fjord near Narvik, was one of the few episodes during the year to be described to the Press by an eye-witness.

> "The convoy was drawn up outside," he said "and into the fjord steamed the two escorting destroyers, sweeping the waters of the first alcove for enemy submarines. What splendid shelter this coast offered to those craft after days of open sea commerce-raiding! With no sign of a U-boat the convoy was allowed to enter to wait their passage into the next part of the fjord. Forward went the two destroyers to start a complete circuit of the next widening stretch of water. Barely had half the bay been covered when a signal was flashed: 'Stand by for depth charges; am about to attack submarines south side of the bay.'
>
> "The charges were fired with strict precision. Five explosions shook the surrounding cliffs and our destroyers quivered in the disturbed waters. The upheaval of waters from the charges was still falling when up shot the waiting U-boat. The swiftness of the surfacing of this submarine made it apparent to all that the charges had exploded beneath her. Another destroyer opened fire and the crew of the submarine, realising the hopelessness of the fight, dived overboard. Shells were now finding their mark in the conning-tower and hull of the U-boat, and not until she was settling down did the destroyer cease fire. The crew of the submarine were rescued and made prisoners."

Three days later the Admiralty, in announcing the activities of the Fleet Air Arm in Norwegian waters, stated that a U-boat was hit two days previously. The same day (18th) the French war communiqué announced:

> "A diver has found at considerable depth, and identified, the wreck of a German submarine, which was attacked by one of our sloops a few weeks ago. The destruction then appeared to be uncertain and was not officially announced."

An estimate of U-boat losses after nearly eight months of war was that the British Navy and Fleet Air Arm had accounted for a minimum of forty-five—with a proviso that another twenty were "possibles"—and that the French had accounted for twenty-three, bringing up the total to 68. Although it was not the Admiralty policy to announce the sinkings, except on special occasions, from time to time broadcast reports of survivors to Germany or the burial of those who had succumbed were positive indications of continued activity against the underwater assassins. On April 27 the Press reported that more than twenty of the crew of a U-boat were buried a few weeks previously at a Scottish cemetery. They had been taken from the water after their submarine had been destroyed by naval units.

On April 29 a story was published of how the crew of a Fleetwood trawler, the Bohemian Girl, some weeks previously, just before dawn, had witnessed the destruction of a U-boat by naval units and then picked up nine Nazi seamen. Warships detected the U-boat off the coast and " trailed " her with their listening apparatus. Depth charges were dropped which it was thought would force her to the surface. Searchlights swept the sea and one warship caught the periscope of a rising U-boat less than 400 yards off. With her guns blazing at almost point-blank range she bore down on her prey and the submarine broke asunder under the terrific bombardment. Survivors and dead were landed, the injured being taken to hospital. Three officers and seventeen ratings were sent to an internment camp and the bodies of twenty-three others were buried in a local cemetery.

Next day it was announced that an R.A.F. Coastal Command aircraft on photographic reconnaissance over a Norwegian fjord had sighted a U-boat. Bombs were dropped and an explosion followed which was not a bomb explosion and which indicated that the submarine had been destroyed.

The month of May, which in the first few days witnessed our withdrawals from Central Norway, the Nazi invasion of Holland and Belgium, and the surrender of these countries at the end of the month, gave the Germans control of the whole coast of the North Sea, from the North Cape to the Franco-Belgian frontier. This offered them undreamt-of opportunities for successful activity against our forces operating on the Norwegian and Netherland coasts, as well as overseas where our escorts had been weakened. Yet they failed to take advantage of them. Consequently our successes against U-boats were few and little information was announced regarding them.

The Admiralty did, however, announce in a communiqué on the evacuation from Dunkirk, that " The enemy was active with submarines and high-speed motor torpedo-boats. Losses have been inflicted on both these forces." But no details were given.

The only definite announcement of a U-boat being sunk during May was that in the French war communiqué of the 2nd, which stated " one of our submarines torpedoed an enemy submarine." The victor was understood to be the Orphée.

The declaration of war on Britain and France by Italy on June 10 and the French capitulation a fortnight later changed radically the strategical situation at sea.

Information about attacks on submarines and sinkings, which had in 1940 already been much curtailed as compared with 1939, became even more meagre after the surrender of France, though there is no reason to assume that our hunting vessels were any less successful. For a time a number of achievements against Italian submarines were announced and then this supply of information also dried up, though here again no doubt success continued.

No attacks on German submarines by naval or other craft were reported in June, but on July 5 the Air Ministry announced that aircraft of the R.A.F. Coastal Command had attacked five U-boats in as many days. The first was sighted in the North Sea early one morning and bombs struck her. Large oil patches appeared but for three hours nothing more was seen of the submarine. The second was found cruising on the surface by a Sunderland flying-boat which dropped six bombs after which a mass of oil and bubbles appeared. The third was bombed directly ahead of the conning-tower while it was still 5 feet out of the water. The fourth was attacked two days later. A direct hit was scored on the submarine just as she was breaking surface. The aircraft dived and two bombs hit her on the starboard and port side. In the fifth case the U-boat immediately " crash-dived," but bombs fell across her bows and only a few yards ahead.

Another attack on a German submarine that month was made by an R.A.F. reconnaissance aircraft, but this fact was not known until it was announced that Pilot Officer J. B. Weightman had been awarded the Distinguished Flying Cross for successfully attacking an enemy submarine when on reconnaissance along the Norwegian coast during a night in June.

During July information released about attacks on German submarines was mostly regarding aircraft attack. On July 2 the Admiralty announced successful operations against German submarines but gave no details.

On July 4 the Press published a story from Berlin to the effect that the commander of the U-boat which torpedoed and sank the armed merchant cruiser Scotstoun had admitted in an interview that in a subsequent attack on a convoy a merchant ship had attempted to ram him. The two periscopes and conning-tower were so badly damaged that his submarine had to suspend further activity. Repairs took sixty hours, during which she had to remain on the surface at the risk of being discovered and attacked.

On July 17 details were revealed of the destruction of a German submarine in the Atlantic by a Sunderland flying-boat of the Royal Australian Air Force. The U-boat was cruising at periscope depth when sighted. Four bombs were dropped which fell round the submarine and she came slowly to the surface. The aircraft dived again and this time two bombs scored direct hits. Germans streamed out of the conning-tower and as the submarine sank to her doom a naval sloop arrived and picked up the survivors.

An account appeared in the Press on August 8 stating that when on July 26 the Elder-Dempster liner Accra was twice torpedoed off the west coast of Ireland the U-boats paid for their audacity, for both were said to have been sunk almost immediately afterwards.

Two dramatic stories of the sinking of German submarines in Scottish waters were released on August 18. One U-boat had made the mistake of surfacing in the vicinity of a number of naval vessels. An armed trawler immediately opened fire ; her gunnery was deadly and the first shot disabled the submarine.

A few days later a defensively armed merchantman with her

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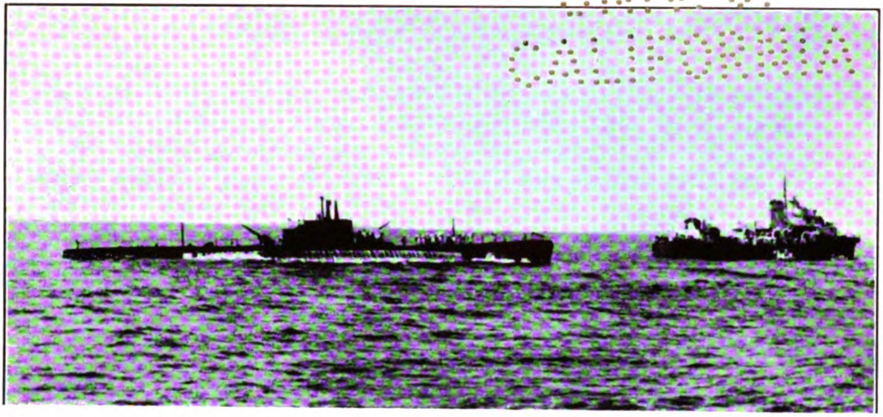
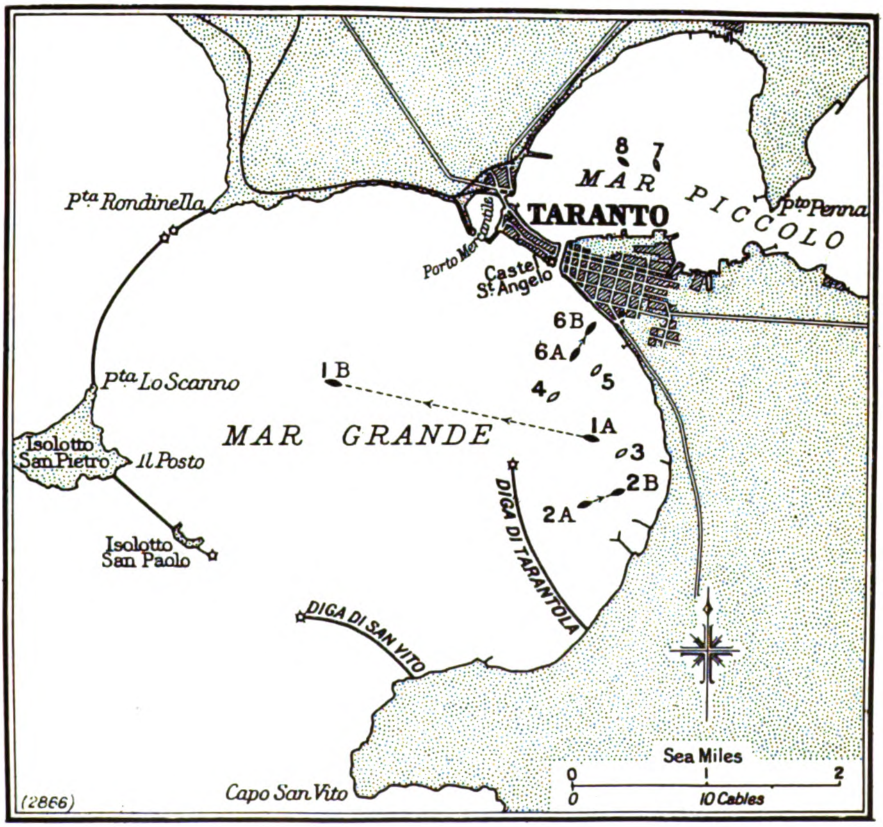




Italian submarine Galileo being taken in tow by a British destroyer after surrendering.

(British Official photograph.)

Plan of the Port of Taranto showing positions of Italian battleships before and after the Fleet Air Arm attack on November 11, 1940. The three ships torpedoed in positions marked A were moved after the attack to positions marked B.

(British Official.)

first shell knocked the top off the conning-tower of a U-boat which surfaced within point-blank range. Surprised and unable to submerge, the submarine circled near the ship which kept within range and covered the U-boat with her gun. Escape was impossible and the U-boat surrendered.

On August 29 it was announced that an auxiliary squadron of the Coastal Command, whose principal work was the escorting of shipping convoys, had had great success in spotting enemy submarines. In two months they had attacked nine U-boats near convoys ; two were probably destroyed and three others damaged. One of the submarines was hit on the starboard side by two bombs. In another attack one bomb fell directly on the U-boat's conning-tower and a second on her starboard side. On another occasion, after patches of oil had come up following the dropping of bombs, the aircraft summoned a destroyer, which dropped depth charges.

The difficulties experienced, owing to the limited visibility, by aircraft, and for that matter in a greater degree by ships, in hunting submarines or surface vessels were illustrated by the following statement published by the Coastal Command. On ten to twelve days a month visibility at sea around the British Isles area from an altitude of 1,000 feet was only about 3 miles ; on thirteen to sixteen days the average visibility for the same height was 6 to 7 miles and only one day in four was it possible to detect a ship up to 15 miles.

On October 4 the Admiralty made the first announcement about attacks on enemy submarines for more than four months. Nine submarines, seven German and two Italians, had been sunk during the last few weeks and others had been damaged. The Admiralty also reiterated that it was not their policy to announce successes against U-boats when they occurred because of giving information to both of Britain's foes, and added : " It should, therefore, not be assumed that we are not scoring successes when no announcements are made."

Next day (October 5) the Air Ministry announced that an R.A.F. Sunderland flying-boat, operating with the Coastal Command in the Atlantic, had a short time previously destroyed a U-boat, which had made a torpedo attack on a merchant ship under cover of darkness. Three bombing attacks were made. The submarine submerged but the first salvo of bombs brought her to the surface. The second salvo caught her as she was again submerging and threw her up " like a cork blown from a bottle." She fell back and sank at once, but a third salvo was dropped "just to make sure." The whole attack was over in a minute and a half !

On October 21 a report was received that the Germans were attempting to salve the French submarines Agosta, Achille, and Ouessant which had been sunk at Brest before the evacuation of the port. This appeared to indicate a shortage of U-boats. There was evidently also a lack of trained submarine crews and the few available would have been much better employed in their own boats, if these were available, rather than in foreign submarines.

Four days later (November 5) an Admiralty communiqué, which referred to the torpedoing of two armed merchant cruisers shortly after the sinking of the liner Empress of Britain—while in tow after being bombed—as constituting a heavy loss, stated that two German U-boats had been sunk, including the one which sank the liner.

No information about submarine sinkings was released during the month of December, in fact the only information on this subject in six months had been two Admiralty communiqués. Consequently, whereas at the end of 1939 a pretty shrewd estimate could be made of submarine losses, this was not possible at the end of 1940. However, this much could be said. The average weekly destruction in 1917–18 was one and a half a week. With the present more efficient detection apparatus, the Asdics, the average is higher, in fact as Mr. Churchill said the sinkings were between two and four a week according to the number at sea. It is likely, therefore, that since the new U-boats began to come into commission in May some 70 per cent. have been sunk. This rate, which should be possible of improvement, is probably greater than that of German replacement of boats and certainly greater than the supply of efficient crews available.

PART III.—THE ITALIAN SUBMARINE CAMPAIGN.

The entry of Italy into the war on June 10 with about 115 submarines—some half a dozen of which were in East Africa—naturally caused an expectation that, as in the case of Germany, this branch of her Navy would be the one used to the fullest extent. Despite the fact that France capitulated a fortnight later and the British Navy, almost single-handed, had to deal with two enemies, this expectation was not fulfilled.

The first offensive measure announced against Italian submarines, which took place the night after hostilities began, was an R.A.F. raid on the Libyan naval base at Tobruk when, in addition to setting the coast defence ship San Giorgio on fire, two submarines were damaged.

With comparatively few merchant ship targets in the Mediterranean and those well protected in convoy, it was reasonable to expect that Mussolini—no doubt on instructions from Hitler—would order his submarines to endeavour to run the gauntlet of the Strait of Gibraltar and proceed to the Atlantic to attack our warships operating from the Gibraltar base and our seaborne trade.

That counter-measures had been taken and a strong patrol established in the Strait soon became apparent. Within four days reports were received of two Italian submarines taking refuge in Spanish ports. On June 14 a damaged submarine was reported to have entered Ceuta, opposite Gibraltar, after firing had been heard in the early morning, and the second had entered Algeciras, after being chased by British warships.

On the same day the Italians claimed their first success, stating that a submarine had torpedoed a cruiser, and next day the Admiralty announced that the anti-aircraft cruiser Calypso, a veteran of the last war, had been sunk in the Mediterranean. An official announcement issued in Alexandria, dealing with the loss, said " It occurred during a recent engagement with enemy submarines. The British scored direct hits on two submarines which were set on fire." The following day, June 16, an Admiralty communiqué stated: "As a result of anti-submarine measures in the Mediterranean . . . four enemy submarines have been destroyed."

A day later two fighter aircraft located an Italian submarine. A bomber was sent out and attacked; the submarine made a frantic "crash-dive," meanwhile the fighters had machine-gunned her conning-tower. Subsequently reports from naval craft stated that the attack was successful. The next day the French reported the sinking of an enemy submarine in Italian waters.

On June 22 the Admiralty announced that a large Italian submarine had surrendered to one of our trawlers.

> "H.M. trawler Moonstone was on patrol in the Gulf of Aden when the periscope of a submerged submarine was sighted. The trawler at once attacked with depth charges. These brought the submarine to the surface. The submarine engaged the trawler with her entire armament, consisting of torpedoes, two 3·9-in. guns, and smaller guns. The trawler replied with her 4-in. gun and a Lewis gun and scored hits on the submarine with 4-in. shells."

Twelve of the submarine crew were killed, including the commander, and four wounded. There were no British casualties. The submarine was brought into Aden as a prize and exhibited to the public.

Next day it was announced that an Italian submarine had been destroyed by light forces operating under the command of the Commander-in-Chief, East Indies. On the following day, for the third in succession, the loss of an Italian submarine was announced. "Yet another Italian U-boat has been destroyed by British naval forces east of Suez thus bringing the total of Italian U-boats definitely known to have been disposed of to seven." Mussolini had then been at war for a fortnight so the average was one every other day.

Only four days elapsed until on June 28 the Commander-in-Chief, East Indies, reported that two more Italian submarines had been destroyed and two days later that two further vessels had been sunk in the East Indies area. On July 2 the Admiralty announced the destruction by our naval and air forces in the Mediterranean of four submarines during the period June 27–30.

Three days later R.A.F. and Fleet Air Arm aircraft raided the harbour at Tobruk, inflicting considerable damage on enemy shipping including a destroyer or submarine. On July 9 a British squadron east of Malta obtained contact with Italian naval forces which retired for home at high speed. The Italians admitted that, in addition to the destroyer Zeffiro being sunk, a submarine had failed to return. On the same day it was announced that H.M. Submarine Parthian had sunk an Italian submarine in another part of the Mediterranean.

On July 14 it was reported from Jerusalem that an Italian submarine had torpedoed an Iranian cargo vessel off Haifa with the loss of two lives.

The Italian submarines' second naval success, a destroyer, was claimed on that day (14th)—after a month of war—though several fictitious claims had previously been made. The Rome communiqué stated: "The sinking of an enemy destroyer was the result of a fortunate encounter in which an Italian submarine boldly engaged six enemy destroyers." The Admiralty had already announced that the destroyer was the Escort which foundered while being towed after the explosion.

On July 22 it was announced that one of the Italian submarines lost in the previous month was sunk by H.M. Australian destroyer Voyager. That night the R.A.F. again raided Tobruk harbour and it was thought that some Italian submarines were damaged. Three days later Rome admitted the loss of another submarine, believed in this country to be the sixteenth since war broke out.

Details were revealed in Cairo on August 1 of how two Italian submarines had been sunk by the R.A.F. in the Mediterranean during July. Three days later Rome admitted the loss of a further submarine, and during an R.A.F. bombing raid on the base of Massawa, Eritrea, a direct hit was made on another.

ATTACK ON NEUTRALS.

Unable to attack British shipping with ease, the Italians, like their confederates, the Germans, turned their attention to neutral vessels and, on August 14, the crew of a Panamanian tanker, the Beme, which had been sunk by an Italian submarine in the Eastern Mediterranean, arrived at Istanbul.

A most dastardly act occurred next day. The neutral Greek cruiser Helle was at anchor in home waters off the Island of Tinos, dressed with flags for the celebration of the Festival of Assumption, when suddenly there was a violent explosion. The cause was a torpedo from an "unknown submarine." Pieces of a torpedo brought up by divers definitely proved by the lettering and numbering that this was Italian.

A force of British aircraft from Egypt on August 22 located two Italian submarines, a destroyer and a depot ship in the Gulf of Bomba (Libya). They attacked—with torpedoes, according to the Italian account—and all four ships were sunk. The Italian communiqué four days later made one of the first claims of a success overseas against merchant shipping. "A submarine, operating in the Atlantic, has torpedoed and seriously damaged a big enemy tanker."

A Lisbon report of September 4 stated that the British liner Avoceta, which had sailed for England the day before, had been attacked by an Italian submarine on the previous Thursday, when 200 miles off the Portuguese coast. The submarine fired twice and then submerged, but not before the Avoceta's first shell had destroyed the periscope.

Captain Carroll MacGowan, of the U.S. liner Exochoria, on arrival at New York, a fortnight later, described the Italian attack, on September 14, on a London freighter, the St. Agnes. The submarine trailed the freighter for twenty-four hours before firing a shot. Then, instead of coming within torpedo range, she hovered 4 miles away and shelled for another twenty-four hours without doing much damage. The freighter answered shot for shot. At dawn next day a torpedo crashed into the ship. Captain MacGowan arrived on the scene in answer to an S.O.S. and found that the submarine had resumed four-mile shelling. "Apparently they hadn't the guts to approach the St. Agnes," he said. "They were unaware the ship had been abandoned."

Towards the end of September the Italians carried their attack against neutrals a stage further, this time against their so-called friends, the Spaniards. On the 22nd the naval authorities at Gibraltar announced that a Spanish trawler had been torpedoed and sunk off the north-west coast of Spain "by what was almost certainly an Italian submarine." Six days later a Spanish ship, the Monte Moncayo, was reported to have been sunk by an Italian submarine off Sicily.

The loss of nine enemy submarines, including two Italian, during the last few weeks was announced on October 4. Others had been damaged. Three days later Alexandria published the fact that two further Italian submarines had recently been sunk by the British Navy.

A report from Cairo on October 6, from a trustworthy naval authority, stated that Mussolini was lending submarines to Hitler, to operate from French Atlantic ports, to aid Germany's depleted underseas fleet in its attempt to blockade Britain. They were far from safe in harbour, however, owing to R.A.F. bombing. Meanwhile, little Italian submarine activity was reported in the Mediterranean, yet with the recent arrival in Egypt of important reinforcements, the enemy could not claim lack of targets. The position was of special interest as it appeared that Mussolini's principal naval effort was being applied outside the Mediterranean, in support of his master, Hitler, instead of in the Italian *mare nostrum.*

The loss of two more Italian submarines in the Central Mediterranean was made known in Alexandria on October 7. This brought the total up to twenty-two. One vessel was followed and constantly attacked for several hours and, when she surfaced, was bombed by an aircraft. Finally, she was sunk by gunfire. The other was sunk by depth charges. A large number of survivors were picked up by the destroyers responsible for the "kill."

On October 28 Italy declared war on Greece and the whole strategic position in the Eastern Mediterranean was altered greatly to our advantage by access to Greek bases on the mainland and in the islands. Crete immediately became an advanced naval and air base from which enemy communications to the Dodecanese and Libya were more easily dominated.

The Italian High Command, on November 3, admitted the loss of two more submarines, and the next day the Admiralty reported the destruction of a further two by our light forces, in one case the hunt being carried out in co-operation with the R.A.F.

Further proof of the efficiency of the Gibraltar anti-submarine patrol was twice given at this time. On November 3, in order to avoid destruction, a large Italian submarine, pursued by British destroyers and seaplanes, took advantage of the safety of neutral waters at Tangier. Two days later another enemy submarine took refuge in Tangier after being chased by our hunting vessels. One of the two showed signs of damage from depth charges.

The length of stay of these submarines at Tangier was the subject of questions in the House of Commons on November 11. The Under-Secretary, Foreign Affairs, Mr. Butler, said the Government had already taken action and were watching to see that the usual practice under International Law was being followed; but these warships were damaged and it was understood they were being made seaworthy as quickly as possible. They left Tangier on December 13 after a sojourn of forty days.

Italy's claim to have submarines operating in the Atlantic, which had sunk a certain amount of British shipping, was corroborated by the arrival on November 6 in Portuguese territory of a boat from the Swedish steamer Meggie, torpedoed by an Italian submarine. There was evidence by the 8th that such craft, possibly operating in Atlantic waters, had been sunk. Certainly the first Italian naval prisoners of war had arrived in England and the B.B.C. in its broadcasts in Italian had, that week, announced the names of ten Italian naval prisoners.

The Greek authorities on November 21 announced that the destroyer Aetos had sunk an Italian submarine.

Another example which demonstrated a certain amount of Italian consideration for the victims of their sinkings of merchant ships—a striking difference from the complete callousness of their Nazi partners—was given in a Press report from Lisbon on December 3. A Scottish boy of seventeen had told the story of how, after a boat had been adrift in a rough sea for two days and nights, the submarine took the men on board. After being in the vessel for four days, they were landed at the Azores.

Proof that attack on neutrals was part of Italian policy was disclosed on December 19, when the Admiralty issued a copy of a secret Italian order to submarines to attack certain Spanish ships without warning, a document regarded in London as part of an attempt to cause strained relations between Britain and Spain. The document, found on board a submarine which had been successfully engaged—apparently the Durbo—was issued by Vice-Admiral Mario Falangola and a translation read:

> "Subject: Attacking merchant ships flying Spanish flag. Secret: I send herewith a copy of Maricosom Number 04087 for your information. Signed Fausto Sestini, Captain of Corvette.
>
> "Inform the units under your command that the ships flying the Spanish flag, belonging to the Ybarra and Pinillos Shipping Companies, leaving or coming from Casablanca and sailing towards Lisbon must be attacked without warning."

Markings of the ships were described.

The combined operations on the Egyptian and Libyan coast from the second week in December onwards—which resulted in the Italians being cleared out of Egypt and the capture of Bardia—while several important units of the Fleet bombarded the coast and others carried supplies for the Army and evacuated the thousands of prisoners, might well have provided many opportunities for

Italian submarines, as well as surface craft, to attack. But few submarines ventured on the scene, although Mussolini made one of his usual false claims that the Neghelli had sunk a cruiser. The Naiade, one of the few which did attempt to interfere with these operations, as announced on December 15, was immediately sunk by our destroyers.

Assertions that several dozen Italian submarines had already reached new bases in the Atlantic and had been out on shipping forays were made by the Italian newspaper, *Corriere Della Sera,* on December 22. " Their operations in the Atlantic extend as far as the Arctic, and they have already sunk over 100,000 tons of enemy shipping, including a Canadian destroyer and a tanker."

Whatever the exaggeration of merchant shipping tonnage lost, certainly the Canadian destroyer was not sunk. This was the Saguenay, announced from Ottawa, on December 10, as having been damaged by torpedo while engaging a submarine in the Eastern Atlantic—understood to be during a night attack on a convoy—but she limped back to a British port. Next day the German news agency stated the submarine was Italian.

The Italian communiqué of December 28 admitted that an Italian submarine had failed to return to her base from the Atlantic.

One of the few submarine versus submarine successes of the present war was announced on January 3. H.M. Submarine Thunderbolt (Lieutenant-Commander C. B. Crouch, R.N.) torpedoed an Italian submarine which was proceeding with an escort of three armed trawlers to a base in enemy-occupied territory. The captain of the Thunderbolt noticed a tall column of water rise and heard a loud explosion ; when smoke and spray cleared away only one end of the enemy vessel was seen and this quickly disappeared. The escort dropped depth charges. Since the explosion of the torpedo was both seen and heard, and since the U-boat would not have dived while trawlers were dropping depth charges in close proximity, it was considered certain that the Italian boat was sunk. The Thunderbolt was the new name for the Thetis, the submarine which in June, 1939, sank during trials in Liverpool Bay.

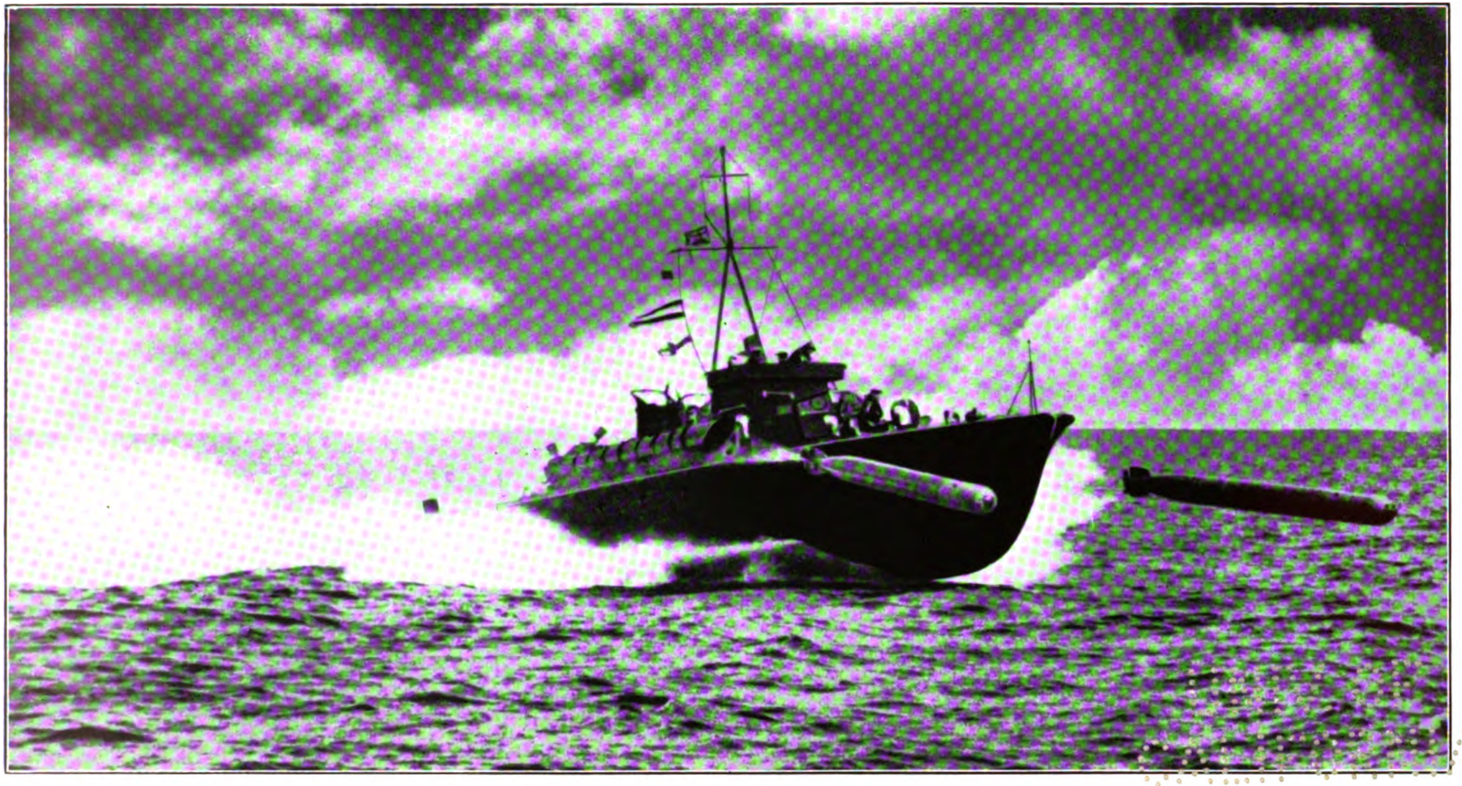
THE POSITION REVIEWED.

There was no unsolved mystery in 1940 of how to defeat the submarine, as there was in the Great War. We had the means to find submerged vessels. The convoy system provided defence where it was needed. The only problem, intensified after the capitulation of France, was the provision of sufficient numbers of escort and hunting vessels. But this was not so much a scientific, strategical or tactical problem as a matter of arithmetic and the production of new vessels by our shipyards.

Germany had tried every form of devilry in submarine attack, several variations of mine warfare, surface raider, and aircraft attack, as had Italy with submarines, mines, and aircraft. But although there had been serious losses in merchant shipping these had almost been made good and it was true to say that the Nazi attack on our seaborne trade had to a large extent failed.

The submarine effort against warships, judged by the sixteen months' results, was ineffective because the proportion sunk was small and had been more than made good by new construction and the fifty destroyers transferred from America. In fact the Navy was far stronger, in practically all types of ships, than at the outbreak of war. What the Nazis apparently failed to appreciate was that the power of our actual blockade of Germany, as well as the antidote to her attempted counter-blockade, lay in the Navy and unless she could defeat this her efforts were doomed to disaster. Britain still retained command of the sea and was able to obtain supplies from the five Continents and transport troops and supplies across the Seven Seas.

H. PURSEY.



British motor torpedo boat in action.

(By courtesy of Messrs. Vosper, Ltd.)

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CHAPTER VII.

THE NAVIES OF OUR ALLIES.

Six foreign navies are collaborating with the Royal Navy in the war at sea. Five of them are based on British territory, only one, the Greek, being still able to operate from its home ports, though the Dutch East Indies squadron remains in control of the colonial bases of the Netherlands.

The normal secrecy attending naval operations in wartime has had to be especially rigid in regard to the work of our Allies during the past year because of the very natural fear of all the officers and men that any publicity about them or their doings would result in " reprisals " by the enemy on those of their relatives who remain in the homeland. One of the most moving experiences of a naval recorder in recent months has been meeting scores of gallant men who have no knowledge whatsoever of the fate of their families, who have had no letters from their homes since their country fell under enemy control. This aspect of the war was first encountered on board the Polish warships in the first autumn of hostilities, when it was noticed that the ship's postman returned from the shore with an absolutely empty bag. An officer's comment on the incident was " It is always so. This "—and he touched the deck lightly with his foot—" is all that is left to us of our native land." Never before in the history of combined operations has such a situation arisen, and as the tide of German invasion swept further and further across Western Europe, the number of naval officers and men of many countries who could say the same thing grew rapidly.

If, therefore, the following record of the work done by the Allied Navies in recent months appears to any to be too slight, to tend to underrate the many services rendered to the cause of freedom by the gallant and hardworked exiles who are reinforcing the work of the British Navy, let it be borne in mind that it is for their own sakes that anonymity and in many cases silence has been preserved. It will not be for ever and when the time comes for full disclosure there will be a thrilling and enheartening chapter to be written.

THE FREE FRENCH NAVY.

Some two hundred French warships of all classes, from the old battleship Courbet to minesweeping trawlers, escaped from French naval bases in the Channel and the Bay of Biscay and reached British ports at the time the German armies were taking possession of the French ports one after another. By the beginning of July

General de Gaulle's movement for the organisation of the Free French Forces had enlisted so much support that a Naval Section of the directorate had become necessary, and Vice-Admiral Muselier, who had reached England from Marseilles by way of Gibraltar at the time of the collapse of the French Government, was appointed to the command.

A month later a formal agreement between the British Government and General de Gaulle was completed, the naval clauses of which were:

> "Naval vessels from the French Fleet will be allocated as follows:
>
> (*a*) The French force will commission and operate as many vessels as it is able to man.
> (*b*) The allocation of the vessels to be commissioned and operated for the French force under (*a*) will be a matter for agreement from time to time between General de Gaulle and the British Admiralty.
> (*c*) Vessels not allocated under (*b*) to the French force will be available for commissioning and operating under the direction of the British Admiralty.
> (*d*) Of the vessels mentioned under (*c*) some may be operated under direct British control and some may be operated by other allied naval forces.
> (*e*) Vessels operated under British control will, when possible, include in their complement a proportion of French officers and men.
> (*f*) All vessels concerned will remain French property.
>
> "The possible use of French merchant ships and of their crews insofar as this is for the purpose of military operations by General de Gaulle's force, will be the subject of arrangement between General de Gaulle and the British Departments concerned. Regular contact will be maintained between the Ministry of Shipping and General de Gaulle as regards the use of the rest of the ships and the employment of the merchant seamen.
>
> "General de Gaulle, who is in supreme command of the French Force, hereby declares that he accepts the general direction of the British High Command. When necessary he will delegate, in agreement with the British High Command, the immediate command of any part of his force to one or more British officers of appropriate rank, subject to what is stated at the end of Article I, above. ("This force will never be required to take up arms against France.")

Organisation of the Free French naval forces went ahead steadily and a number of vessels flying the Tricolor and manned by Free French naval ratings accompanied General de Gaulle on his expedition to Dakar. Among them were the three sloops Savorgnan de Brazza, Commandant Duboc, and Commandant Domine. The French senior naval officer with the flotilla was Capitaine de fregate D'Argenlieu who was seriously wounded when approaching Dakar under a White Flag as an emissary from General de Gaulle. Subsequently fire was opened against the Free French ships and several men were killed and many wounded before the General ordered a withdrawal from before Dakar.

The Savorgnan de Brazza, a sloop of 1,969 tons, remained on the West African coast and was reported in action during November with the French sloop Bougainville, her own sister ship. The Bougainville was stated to have been sunk in the course of the engagement.

Many of the French vessels in British ports were put into service with British crews during the autumn under paragraph (*e*) of the agreement quoted above, and on October 22 the Admiralty announced that the patrol vessels 06 and 07, commanded by Lieutenant W. B. P. Galbraith, R.N., and Sub-Lieutenant C. A. Gabbett-Mulhallen, R.N., respectively, had been sunk by enemy light craft and there was reason to believe that a number of the crews had been taken prisoner.

At the beginning of November Admiral Muselier carried out an inspection of groups of French naval units at a southern base in Britain who were regularly taking part in operations of the British Navy. He recorded that the commander of a submarine of the Free French Navy had been awarded the D.S.O. for particularly distinguished conduct against the enemy. The crews of one destroyer and one sloop had also been congratulated by the Admiral commanding the British port for gallant behaviour in difficult circumstances at sea. One important unit of the Free French Forces had for the fourth time been successful in bringing down a German aeroplane. On another occasion five members of the crew of a Free French destroyer were mentioned in despatches by a British Port Admiral for their brave help to the civilian population during an air raid.

The first loss suffered by the Free French Navy was the destruction by enemy action of the patrol boat Le Poulmic. This was announced by Admiral Muselier on November 16. A second loss was recorded on January 9, 1941, when it was officially announced that the submarine Narval, which was the first underwater vessel to rally to the Free French movement, had been sunk by enemy action with the loss of forty-nine lives during operations with the Allied Forces.

The process of commissioning destroyers, torpedo boats, minelayers, submarines, minesweepers, and patrol boats with Free French naval volunteers went on steadily all through the autumn, and towards the end of the year Admiral Muselier was able to announce that thirty warships were on service as part of General de Gaulle's forces. It was also announced that a French naval academy had been opened in England for the training of future officers for further ships to be commissioned with wholly French crews.

Agreement about the future use of the French merchant ships which rejected the control of the Vichy Government, was made in July. The French merchant ships in United Kingdom ports were requisitioned by the British Government, with the proviso that compensation would be paid for their use at the end of the war and that the ships would be returned to France. During the war all these ships would sail under the British flag but would also fly the French flag. A similar agreement was made with regard to French warships manned by British crews, the understanding being that the White Ensign and the Tricolor would be worn together in one position side by side, so that each was displayed with equal honour. French Merchant Navy officers and seamen were offered employment in the requisitioned French ships, the terms of employment being the same as those for British seamen.

THE GREEK NAVY.

Admiral A. C. Sakellarious, Chief of the Greek Naval Staff, made it the first task of the Greek Navy to cover the movement of troops for the mobilisation when war suddenly burst upon Greece. Many of the men called to the colours were resident in the scattered islands and the peninsulas of southern Greece and transport for them to their depots, as at Salonika, for example, was a matter of sea passage. There is little doubt that Italy had counted on a long delay before the men could report: probably the Italian Naval Staff had promised that any movement by sea would be checked. In the result Greek mobilisation was carried out with extraordinary rapidity. No interference of any sort with the sea passage was experienced, thanks to the moral dominance which Admiral Sir Andrew Cunningham had established in the Eastern Mediterranean, and the Greek patrols in the Aegean and among the channels of the Cyclades found no opportunity for action.

The Greek Navy is essentially a small-craft service and its destroyer and submarine men owe much of their training to British Naval Missions. The material strength of the Navy at the start of the war was as follows:

		Tons.		Knots.
Cruiser:				
Averoff	(1910)	9,450	4 9·2-in., 8 7·5-in.	23
Destroyers:				
Vasilevs Georgios	(1938)	1,350	4 5-in., 8 tubes.	36
Vasilissa Olga				
Hydra	(1931–32)	2,059	4 4·7-in., 6 tubes.	39·5
Kondouriotis				
Spetsai				
Psara				
Aetos	(1911, rebuilt 1924–25)	1,300	4 4-in., 6 tubes.	32
Ierax				
Leon				
Panther				
Torpedo boats:				
Thyella	(1906, rebuilt 1926–28)	305	2 3·5-in., 2 tubes.	29
Sphendoni				
Aspis	(1905–6, rebuilt 1928–29)	275	2 3·5-in., 2 tubes.	29
Niki				
Aigli	(1913, rebuilt 1926–30)	145	2 6-prs., 2 tubes.	24
Alkyone				
Arethousa				
Doris				
Submarines:				
Nireus	(1927–28)	700	1 3·9-in., 8 tubes.	$\frac{14}{9}$
Proteus				
Triton				
Glafkos				
Katsonis	(1926)	576	1 3·9-in., 6 tubes.	$\frac{14}{9}$
Papanicolis				

Rear-Admiral Cavadias, commanding the destroyer flotillas, took his force from the Aegean area round to the Ionian Sea as soon as it was clear that the Army mobilisation had been completed without interference, and on November 9 he carried out a reconnaissance raid up the Straits of Otranto towards Valona without encountering any enemy patrols or sighting any squadrons on the move. This first penetration of the Adriatic was followed two nights later by the British raid with light forces at the same time as the Fleet Air Arm's attack on the Italian main force in Taranto Harbour.

On November 21 the Greek destroyer Aetos (Captain Oeconomou Gouras), while escorting a convoy sank an enemy submarine with depth charges. The scene of the action was not disclosed. The official report said that the submarine was lying in wait for the convoy and fired a torpedo which missed. When the submarine came to periscope depth to ascertain the effects of her attack, her commander brought her up too far and the conning-tower showed. The Aetos overran the spot and let go depth charges and shortly afterwards quantities of oil welled to the surface. The Aetos dropped another depth charge before resuming her station with the convoy. Captain Gouras was decorated with the War Cross, First Class, for the feat.

During December two Greek submarine successes occurred. The Papanicolis (Lt. Com Iatrides) attacked an Italian troop convoy in the Adriatic off Valona on December 24. There were six large transports, escorted by six destroyers, but the Papanicolis worked her way inside the destroyer screen and fired four torpedoes at the transports. She then dived to 170 feet, and while submerged the crew heard three separate explosions before a barrage of depth charges began. The Greek submarine was hunted by surface craft and aeroplanes throughout the day but she made her way northwards towards the Dalmatian coast. She was found by the enemy again at daylight on December 25, and until nightfall on December 26 she was subjected to frequent attacks by enemy bombers. She escaped with no more than an occasional shaking, and returned safely to her base. Lt.-Com. Iatrides was promoted and awarded the War Cross, First Class, and all the officers and men were decorated.

On December 31 the submarine Katsonis, on patrol off the Albanian coast, sighted an Italian auxiliary tanker armed with two guns, steering in the direction of San Giovanni di Medua. The Katsonis fired two torpedoes, but the tanker's captain noticed the attack and took avoiding action so that both torpedoes missed. Thereupon the captain of the Katsonis surfaced and open rapid fire with his own gun, a 3·9-inch at a range of 500 yards. She obtained several hits which caused explosions and fires, and the tanker drifted, out of control, and grounded on the Jugo-Slav coast.

Two more raids into the Adriatic were carried out by Rear-Admiral Cavadias and his destroyers in December and January. The first was on December 20, when the vessels passed through the Straits of Otranto in order to reconnoitre the approaches to Valona. The Italians were supposed to have fortified the Island of Saseno, at the entrance to Valona Bay, and to have heavy batteries also on the peninsula west of the bay. Admiral Cavadias was so satisfied with the results of his exploration that he made a further and much more daring raid on the night of January 5. He then took his light forces right inside the bay and shelled the harbour works, subsequently withdrawing without loss.

On January 18 the Greek Ministry of Marine announced that the submarine Proteus had attacked an Italian convoy strongly protected on the way to Albania on December 29, and had sunk the fully-laden transport Sardinia (11,500 tons). Unofficially it was also stated that the Liguria had also been torpedoed whilst in convoy. Italian official reports had previously claimed the sinking of an enemy submarine "identified as the Greek submarine Proteus" on December 19.

THE ROYAL NETHERLANDS NAVY.

During the five days of intensive fighting in Holland, in May, Dutch warships were frequently engaged in bombarding the advancing German troops ashore and in the course of these operations one destroyer, two gunboats and one minelayer were lost. The majority of the other units succeeded subsequently in withdrawing from Dutch waters and reaching British harbours. Among the vessels which thus came to swell the Allied naval effort were some whose construction and fitting out had not been completed. A group of plucky naval constructors had the foresight to obtain blue prints and drawings of these ships from the offices in the yards before they made their escape, and the uncompleted vessels were taken in hand in British yards to be made ready for service.

The available ships were collected from the various harbours to which they first proceeded and were assembled at a British port. One of the first tasks allotted to the Navy was the escorting of Princess Juliana and the two infant Princesses to Canada, and one of the two cruisers which carried out this work subsequently remained for some time in the Atlantic escorting troop and other convoys.

Vice-Admiral Fürstner, who took over command of the Royal Netherlands Naval Forces in Europe, had a big task of organisation, deputed to him by the Minister of Defence, Lt.-Colonel Dyxhoorn. Future training of both officers and men had to be rearranged. For this purpose a big country house in England was taken to replace the Dutch Royal Naval College at Den Helder for the training of cadets. This new college was in working order by mid-July, but with a changed curriculum. Normally the training course for Dutch naval officers lasts three years. For the emergency conditions of the war, the Dutch Government decided to adopt the system used by the British Navy for the training of the Royal Naval Volunteer (Supplementary) Reserve and concentrate the schooling into a three to four months' course of intensive training. Of the 250 cadets who were already enrolled at Den Helder 120 were evacuated safely to England and most of them had passed out of the new college for active service by the end of 1940.

Organisation of the material resources into flotillas for service under conditions very different from those that had obtained in Dutch waters was rapidly carried out, together with arrangements for a Dutch force to collaborate in the West Indies area with the British patrols. This work, which is both arduous and monotonous, was rewarded after many dreary weeks when the sloop Van Kinsbergen (Com. J. L. K. Hoeke) was instrumental in bringing about the destruction of a Nazi supply ship. The Van Kinsbergen was operating in collaboration with the British cruiser Caradoc on the watch for a group of four German steamers which were expected to make a attempt to escape from Tampico, Mexico, and join a commerce-destroying raider working in the North Atlantic. The Van Kinsbergen sighted a suspicious ship in the early hours of December 11, and identified her as the Rhein (6,031 tons). She challenged and when the German ship attempted to slip away fired a warning shot across the bows. The Rhein thereupon stopped and Commander Hoeke sent a boarding party across. They found that the Germans had set the ship on fire as well as making an effort to scuttle her. In the heavy weather that prevailed it was found impossible to save the German ship and after the boarding party had been withdrawn, with the German crew as prisoners, she was sunk by gunfire.

In European waters Dutch minelayers were engaged in secret enterprises on many occasions, and in the course of this work one very difficult and dangerous undertaking was so successfully carried through that it brought the commander and the ship's company a special telegram of congratulation from the First Lord of the Admiralty. Dutch minesweeping flotillas were also organised and took over certain stretches of British home waters.

Submarines of the Netherlands Navy were allotted special patrol areas quite early in the collaboration with the British forces and much valuable practical war experience was made known to the Dutch submarine specialists by their opposite numbers in the British submarine service. The Dutch craft were speedily at work in enemy waters and throughout the past months have taken their regular place in the rota of vessels on patrol. Up to the end of 1940 two Dutch submarines had been lost on this service, though many attacks had been made on them and they had been in many tight corners.

The Dutch Fleet Air Arm was re-formed after the establishment of naval headquarters in England. Modern machines were acquired, some of which were paid for out of monies subscribed to the Prince Bernhard Fund, and in addition to personnel of the existing Fleet Air Arm aviators who had formerly been in the Dutch military flying corps were drafted for naval service. The Dutch squadrons were attached for operations to the British Coastal Command and worked on convoy protection and submarine hunting. Several attacks on U-boats were carried out in the course of the year, but details cannot yet be released for publication. Young men called up for military training under the Government's proclamation were drafted to the Fleet Air Arm and it has also to be recorded that a proportion of the men called to the colours were allocated to the Merchant Navy for service.

The naval personnel was increased during the year by the calling up by Royal Decree of several categories of men, and power was taken at the same time to call upon these men to serve, if required, in the Dutch Mercantile Marine, should such service be found necessary in the interests of the State. This proclamation was of some historic interest, as it appears to be the first made, in modern times, by any State imposing compulsory service in the Merchant Navy.

THE POLISH NAVY.

Nearly 50 per cent. of the pre-war Polish Navy succeeded in eluding capture by the Germans in the Baltic and in reaching British ports. Nearly 40 per cent. were sunk in the Baltic after a heroic struggle against the much more powerful German Navy and German Air Force. The three modern destroyers Blyskawica (Lightning), Grom (Thunderbolt), and Burza (Squall) left Gdynia, the Polish naval base, in time to pass through the Sound before the outbreak of war. The two submarines Orzel and Wilk fought in the Baltic as long as it was possible, and the full story of the adventures of the Orzel, which was made public some weeks after her arrival in a British port, was one of the most remarkable " tales of the Trade " that has yet been recorded. She cruised in the Baltic for forty-four days, nearly unarmed, with no charts, having left Talinn in Estonia, where she had been interned under guard, and towards the end she had only a gallon or two of water left. She passed through the Sound, and the Skagerrak to a British port. She grounded two or three times in the Baltic, since she was being navigated only by the help of a list of lighthouses and a map drawn from memory by one of the officers. But on each occasion she escaped serious damage to the hull. In trying to make her way out of the Baltic she was detected by German patrols and hunted and made her way, by accident, into a channel so shallow that she could not dive. But the Germans never thought of watching that stretch of water since it was considered impracticable for submarines, and so she eluded the pursuit. Her troubles were not over when she reached the North Sea, for there she was as likely to be sunk by British patrols as by German, since her commanding officer had no British recognition signals. Her wireless had been damaged, but on October 14, 1939, he succeeded in getting through a faint message, which was picked up by a Scottish station. The signal is historic and deserves to be remembered : " Supposed position 0630 on appointed place for Polish Navy. Beg permission entrance and pilot but have no chart. Orzel." British destroyers went out to look for her and a few hours later she was tied up alongside a British submarine depot ship.

Thereafter she and the Wilk, which had also come through the Skagerrak successfully, worked in conjunction with a British submarine flotilla from a northern base, taking their place in the rota for patrols with the British boats. Their officers and men lived on board the depot ship while in harbour, the men having their own mess exactly as each British boat's crew has, with the ship's name at the head of the mess tables. The present writer had a long talk with a group of the men of the Orzel on the mess deck of the depot ship some time after they had begun their war service as Allies alongside the British submarines. They were full of enthusiasm and keenness and they demonstrated their skill during the invasion of Norway in April, 1940, when their boat was one of those engaged in attacking German lines of communication. The Orzel sank the German transport Rio de Janeiro which was carrying troops for the invasion on April 7, and subsequently attacked a German destroyer and three other supply ships, though the results of the attacks were never officially ascertained. On June 12 the Polish Naval Staff announced that the return of the Orzel from a patrol was considerably overdue, and the ship must be presumed lost.

A new submarine for the Polish Navy was launched at a British shipbuilding yard, in January, in the presence of General Sikorski, Vice-Admiral Swirski, and Admiral Sir Max Horton, who was Admiral Commanding Submarines. Polish officers and men appointed to the new boat were also present.

Rear-Admiral Swirski, who has been head of the Polish Naval Forces since 1925, established his headquarters in London in December, 1939, and an agreement was entered into between the British and Polish Governments for the co-operation of all available Polish warships with the British naval forces for the duration of hostilities. The three destroyers were first attached to the flotillas working in the western approaches, and after they had been at work for a few weeks Admiral Sir Martin Dunbar-Nasmith, Commander-in-Chief at Plymouth, inspected them and praised them for their work. They were subsequently attached to an East Coast command, and among other services one of them saved part of the crew of a British merchant ship which had been mined, and the Blyskawica was credited with the destruction of two German Heinkel bombers by anti-aircraft fire. The Grom was engaged in the operations off Norway during April and May, and was sunk after being heavily bombed on May 3, with the loss of sixty-six officers and men. Three days later two British destroyers were transferred to the Polish Navy, the transfer of one of them taking place at Malta, whither a Polish crew was sent to man the ship.

The Polish Mercantile Marine was placed at the general service of the Allies by a decision of the Polish Cabinet in October, 1939, and the spirit of the masters and men was well shown by the escape of two ships, the Rozewic (1,000 tons), and the Kroman (1,864 tons) from Dakar, where the French authorities had endeavoured to intern them after the collapse of the Paris Government. Though deprived of some engine parts and all their charts, and with French coastal batteries manned night and day, both ships emulated the feat of the Orzel in outwitting the guards and making their way to a British port.

THE NORWEGIAN NAVY.

The German attack against Norway at the beginning of April, 1940, resulted in severe material loss to the Norwegian Navy. The coast defence ironclads, Eidsvold and Norge, sister ships of 4,166 tons, built in 1900, were torpedoed and sunk in the anchorage at Narvik. The torpedo craft Aeger (597 tons), Garm (540 tons), Stegg, and Trygg (220 tons), and Sild (90 tons) were all destroyed by the enemy, and German reports claimed that the new torpedo-boats Balder and Tor (597 tons), both nearly completed, had been taken over intact and incorporated in the Nazi Navy. Other losses recorded were the minelayer Froya (595 tons) and the fishery protection vessels Senja (243 tons), and Michael Sars (300 tons).

The only ships of the Norwegian Navy publicly recorded as reaching a British port were the two destroyers Sleipner and Draug (540 tons), but it is understood that other units escaped and have been working with the British Navy.

When the Norwegian Government was established in Britain Rear-Admiral Diesen, the Commander-in-Chief of the Norwegian Naval Forces, immediately set in train reorganisation of the personnel and provision of craft for them to man. The most immediate need was adaptation of the Norwegian Mercantile Marine personnel to Allied service, but thereafter the rebuilding of a Norwegian Navy proceeded steadily. The British Admiralty offered the facilities of a British training establishment for the instruction of new ratings, and a first detachment of one hundred men, with a Norwegian commander in command and two British R.N.V.R. officers who were fluent in Norwegian as liaison officers, went to H.M.S. Royal Arthur, the new British training establishment, for a five weeks initiation into naval discipline. The experiment was of peculiar interest. The Norwegian seamen, many of them experienced in seafaring but with no naval knowledge, found themselves a tiny group among some thousands of British trainees whose language few of them spoke. They found themselves also being instructed in squad drill in English by a British petty officer who had no Norwegian either and yet the men quickly learned to understand the words of command in a language strange to them and to execute movements with precision and smartness. Seafaring knowledge and boat drill was simple, for nearly all of them were experienced seamen. Many had made their way to England from the South Atlantic whaling bases, where they had been employed either in the whale catchers or in the floating factories. Others had served in coastal vessels among the Norwegian fjords and had escaped from Norway to England after the German occupation of their home towns by sailing across in small craft.

Norwegian naval airmen worked with the Coastal Command, their specialised knowledge being particularly helpful in raids against the ports occupied by the enemy.

THE BELGIAN NAVY.

Like the Norwegians, the Belgian naval ratings called to the colours by their Government after it was established in Britain, received preliminary naval training at a British establishment with our trainees. Like the Norwegians, too, they had their own quarters in the establishment, their own officers and chaplain, but they, too, fraternised freely with the British recruits. On several occasions, when there were admirals' inspections of the establishment, and on the occasion when King Haakon visited the place to inspect the

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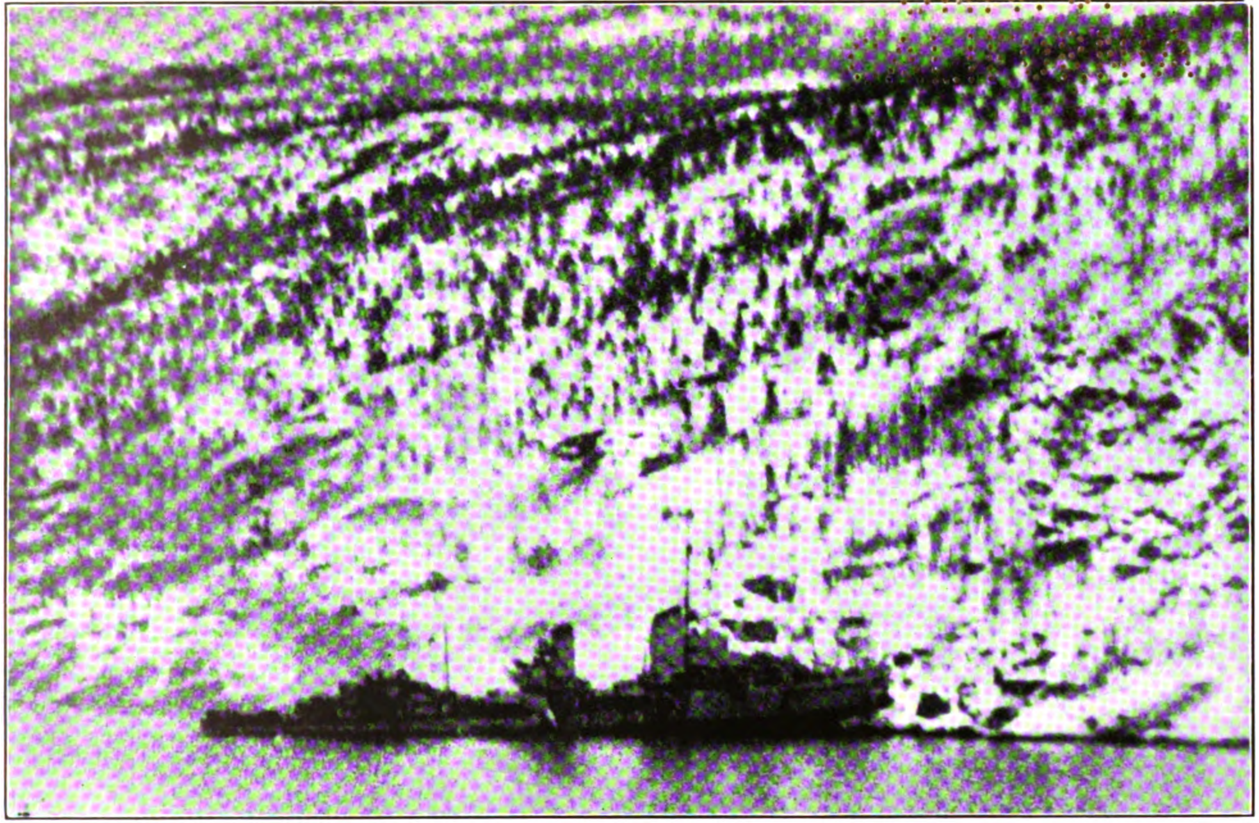

NARVIK

The last of the German destroyers. Hans Ludemann beached in Rombaks fjord.

(*British Official photograph.*)

Norwegian contingent, the Belgian and Norwegian contingents, headed by their national colours, marched past as divisions of the whole ship's company and one saw the unusual spectacle of a foreign naval officer in a British-pattern uniform, reporting to the British admiral and standing beside him while the detachment passed the saluting base. The Belgian officers, incidentally, bore the rank markings of the R.N.V.R., the wavy stripe, whereas the Norwegian officers had the straight bands of the R.N., with the executive curl.

The Belgian recruits were nearly all off-shore fishermen, and their training was mainly directed towards preparing them for service in minesweepers and small patrol craft.

H. C. Ferraby.

CHAPTER VIII.

THE OBJECT IN WAR.

It is a well accepted maxim at staff colleges that the selection of the object to be striven for in any warlike operation or scheme of preparation is of great—indeed of paramount—importance. Unless, it is postulated, one knows exactly what one is aiming to achieve, the prospect of achieving valuable results must necessarily be uncertain; for the leader or organiser of any warlike enterprise who has not always before his mind the object to be gained will correspond to the captain of a ship who has no clear idea of what port he intends to make for. A careful, a very careful, consideration and selection of the object is therefore held up as an essential prerequisite of ultimate success.

It is commonly admitted that this task of selecting the object is not easy, that on the contrary it is exceedingly hard; and naval staff college graduates will doubtless have no difficulty in calling to mind lively arguments on the subject during their sojourn in the venerable, if grimy, precincts of the Royal Hospital at Greenwich.

Many episodes in the last war well repay study with a view to discovering how far the success, or lack of it, of commanders who directed the course of events was due to a right or wrong selection of the object to be pursued. At Gallipoli, for instance, was the object merely to pass ships through the Dardanelles, without thought of what should happen thereafter; or was it to open the Straits to continuous Allied traffic? If the former, success in a naval attack would achieve it. But if the latter, a naval attack without the co-operation of a military force to ensure against enemy reoccupation of the shores of the Straits not only could not achieve it; it would even make its attainment more difficult, except in the unlikely event of the total collapse of enemy resistance following the passage of the Straits by men-of-war alone. Many other examples would also serve to illustrate the very considerable influence that the choice of object may have on the action to be taken.

They serve also to emphasise the importance of an earnest canvassing of the object to be pursued in any projected warlike undertaking, with a view to the selection of the most accurate one possible; since slipshod methods or hasty conclusions leading to an ill-considered choice of object will, as likely as not, lead to a wrong and unfortunate course of action. And the higher the plane of the action, the more unfortunate will be the consequences flowing from inadequate thought being devoted to the object which will govern that action.

A particularly instructive example of this process of causation is to be found in the development of British strategical policy during the ten years before the last war. In the last years of the nineteenth century, Germany began to make it clear to Great Britain that she intended to challenge the position of naval supremacy that Britain had held without serious rivalry for over one hundred years. As the German purpose, advertised in successive naval development laws, became clear, the threat to Britain's maritime position, which never fails to stir her to action, caused her to examine her position in the world in the light of this new menace.

Outside Europe, conditions were satisfactory. Of the two great non-European powers, the United States and Japan, there was every reason to regard the United States as thoroughly friendly, while Japan was actually an ally. It was in regard to Europe itself that the prospect became less agreeable. At the turn of the century, Europe was divided, as it for long had been, in two rival groups, headed respectively by the two age-old rivals, Germany and France. With Germany were Austria and Italy, forming the Triple Alliance; backing France was Russia. And of the two groups, the Triple Alliance was undoubtedly the stronger.

Great Britain, confident in her maritime strength, had for many years kept aloof from the European groupings and animosities. But of the two chief groups, her sympathies unquestionably had for some time lain with the Triple Alliance. France was still widely regarded as the traditional enemy of Napoleonic times, with sinister present-day ambitions in Egypt, Morocco, and elsewhere; while Russian intrigues in the Near and Middle East were a constant source of anxiety to the Indian and Foreign Offices in Whitehall. With the Germanic Powers and Italy there were, on the other hand, no particular bones of contention; and of course the British Royal Family had strong Teutonic affiliations. For nearly two decades, therefore, Great Britain had been noticeably inclining towards the Central Powers, even if she did not actually enter their orbit. In doing so, she was acting in contradiction of her oft-alleged policy of supporting the weaker of the two European groupings in order to maintain a balance of power. Though she cannot in this case be said to have been openly supporting either group, it was nevertheless on the side of the stronger Powers that her chief sympathies were to be found.

> "The Triple Alliance in 1886 and the following years, when Lord Salisbury and Lord Rosebery were Prime Ministers, was indisputably the strongest political combination, the most powerful thing in Europe. Nevertheless, the policy of friendship with it was followed by the British Government even before the Franco-Russian alliance had come into existence as a counterpoise; and this policy was continued for many years, while the Triple Alliance continued, in spite of the Franco-Russian alliance, to be the dominant factor in European diplomacy." *

What put an end to this British dalliance with the stronger European group was its chief constituent's sudden resolve to become a considerable naval power. The announcement echoing forth from Berlin that "Germany's future lay upon the water" cured Britain at a stroke of any feelings of friendship towards the Central Powers

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* "Twenty-five Years," Lord Grey of Fallodon.

of Europe and set her busy with thoughts of how to meet the German naval menace should it develop in earnest.

The first reaction of Britain's rulers to the ominous growlings from one of the two European groups was to make their peace with the other. Advances were made to France and resulted in the mutual understanding known to history as the Entente Cordiale of 1904. In this general overture, the British object was unquestionably sound. If war with Germany, and possibly also her allies, were now a measurable contingency, an obvious precaution for us to take was to clear away as many as possible of the outstanding causes of friction we might have with Germany's known rivals, so as to be free to devote our whole strength to the German aggression, should it come. Actually, the Entente Cordiale understanding went slightly further than that. France had for long been living under the shadow of German power, and now that Britain was affected in the same way, the question of mutual support against what might be a common enemy was bound to arise in the mind of one or other of the parties to the Entente.

From the British point of view, any such question involved a number of superlatively important strategical and political considerations connected with Britain's ultimate object, which rightly demanded a most comprehensive and searching examination of all the relevant factors before a conclusion could properly be reached. It happened, however, that definite continental commitments were at this time and had for long been very much against the tradition of British foreign policy. The French knew this, and the knowledge most probably restrained them from putting forward a proposal for a definitive alliance. All that was certainly agreed to in the original Entente agreement was a mutual pledge of diplomatic support. Britain remained uncommitted, and it was indeed officially insisted on this side of the Channel right up to the outbreak of war that British freedom of action was unimpaired. For instance, Sir Edward Grey, the Foreign Secretary, speaking in the House of Commons on August 3, 1914, the day before war broke out, said

> "I have assured the House, and the Prime Minister has assured the House more than once, that if any crisis such as this arose we should come before the House of Commons and be able to say to the House that it was free to decide what the attitude of the House should be. . . . The Government remained perfectly free and *a fortiori* the House of Commons remained perfectly free."

The Entente agreement had been negotiated by a Conservative Government. At the end of 1905, a Liberal Government came into office and a general election early in 1906 confirmed them in power. It was this change of Government that brought Sir Edward Grey to the Foreign Office, and in January, 1906, while the election was in full swing, he was approached by the French Ambassador who inquired whether France would count on British armed support in Europe in the event of a rupture with Germany. Sir Edward replied that he could give no such assurance, but he assented to a further suggestion that conversations should be initiated between the French and British military staffs in preparation for possible support being given. There is reason to think that in giving his agreement to the staff conversations, Sir Edward was acting on his own responsibility and without consultation with his Cabinet colleagues or even with his chief, the Prime Minister. The question arises, had he consulted with himself, or was he acting on the spur of the moment?

If, in fact, he had thought the matter out thoroughly beforehand and was meeting the French Ambassador with a mind fully prepared on the matters likely to be discussed, his cogitations must have been mainly concerned with the object to be achieved, for that was the real matter at issue. And it may be useful to remark here that the "object" in this context means the British object, that and that alone, for Sir Edward Grey was responsible to the British Parliament and people and to no one else. Can we then be sure that, when he gave his immediate assent to the French Ambassador's proposal for military conversations, he had devoted meticulous prior attention to the question of the correct British object in the matter of the French Entente, and was satisfied that the military conversations would contribute directly to the achievement of that object? And had he a clear prior understanding, based on his own mental questionings or on full expert advice, as to what the conversations would be likely to lead to?

We cannot know for sure, but a study of the development of the situation in the following years may perhaps lead us to certain conclusions. One thing that becomes reasonably clear from such a study is that whatever *desiderata* the Foreign Secretary's agreement to the conversations was based upon, a full expert appreciation embracing every aspect of the situation was not one of them. The professional advice of the heads of the Services as to whether the institution of military conversations would or would not be a sound strategical move cannot have been available to Sir Edward Grey when he made his decision to authorise them. This can be fairly inferred from the undoubted fact that the Admiralty was kept generally in ignorance of the progress, if not of the fact, of the military talks. Sir John Fisher, the First Sea Lord then and for the next four years, was known to be emphatically, even violently, opposed to any suggestion to sending an Expeditionary Force to the Continent. That he may have become aware at some period that staff talks were in progress is probable. But his explosively hostile comments on the obvious implications of the talks, whenever he had an opportunity of officially expressing an opinion during the remainder of his tenure of office, render it quite inconceivable that he can have given his professional blessing to any proposal of the Foreign Secretary's to agree to a suggestion for such talks, should the French Ambassador put it forward. And if not, if in fact the Foreign Secretary had committed himself to the military conversations without first discovering the Admiralty's views on that subject, the subsequent revelation of the First Sea Lord's extreme antagonism to continental intervention of any kind might be expected to have exactly the results that came to be manifested. Faced with violent naval hostility to the course of action which he had authorised and from which he could not subsequently withdraw, a natural protective measure for the Foreign Secretary against the Admiralty's angry broadsides was to keep that office in ignorance of what was on foot. That at all events was what happened. In March or April of 1911, for instance, Grey became aware that definite proposals for military assistance in the event of war were about to be put forward by the French (they had already been concerted between the two staffs). As Grey makes plain in a letter printed in his book "Twenty-five Years," he himself withheld this information from the Sea Lords.

After their first inauguration in 1906, the military conversations suffered various ups and downs until Colonel Henry Wilson became Director of Military Operations in 1910. From then onwards they went forward with a swing. In the middle of 1911, Wilson himself had actually signed some form of agreement with General Dubail of the French General Staff in which were precise stipulations for a certain number of British divisions to go overseas on the outbreak of war to various specified zones of concentration in France. Incredible as it may seem, it is nevertheless hardly disputable that no news of any continental commitment or understanding of this type can have reached the Admiralty; for when the Agadir crisis of a few weeks later brought the whole question of our war strategy up for consideration by the Committee of Imperial Defence, the First Sea Lord, by then Sir Arthur Wilson, showed by his behaviour before the Committee that he could have had no inkling of an agreement to send troops to the help of the French; for the strategical plan that he outlined made no provision for anything of the kind. It seems clear that for five years at least after his original concurrence with Cambon's suggestion for military staff talks, Grey had taken no steps to see how these fitted into the general framework of British strategy, but had rather gone out of his way to ensure that the wider aspects of the conversations should not be examined. It is noteworthy that two successive Prime Ministers both expressed apprehension regarding the conversations during this period. "I do not like the stress laid upon joint preparations," Campbell-Bannerman had said, in February, 1906. "Conversations such as that between General Joffre and Colonel Fairholme seem to me rather dangerous," wrote Asquith in 1911.

If, however, we cannot say that Grey was pursuing a policy that had the full support of representative professional opinion and of his Cabinet colleagues, can we still assume that it was at all events the offspring of hard thinking by himself? While it would naturally be extremely difficult to reach an absolutely definite conclusion on such a point, there is nevertheless evidence to hand that is at least highly suggestive. Referring to the matter in his "Twenty-five Years," Grey himself says:

> "My own opinion—*perhaps it would be more accurate to call it an instinctive feeling rather than a considered opinion*—was that if Germany forced war on France in order to destroy the Anglo-French agreement, we ought to go to the help of France." *

If that extract does not show that Grey had not given the whole question long and careful thought, but had instead jumped to a hasty and ill-considered judgment, it comes very close to it; so close that it is a reasonable assumption that he had in fact so acted. And if so, his reliance on instinct rather than intellect can be said to have led him into difficulties from the very start. Proceeding on from the above quoted passage of his book, he says this :

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* My italics.

> " We should be isolated and discredited if we stood aside ; hated by those whom we had refused to help, and despised by others."

This statement is well worth a passing study. What does it say ? That we should be isolated, discredited, hated, and despised if we stood aside. But was that certain ? The United States of America have so far stood aside from the present war. Are they on that account becoming isolated, discredited, hated, and despised ? It can confidently be said that there is no public evidence of it up to the time of writing. It is probable that Grey was being over-sensitive. But even if he was not, even if his diagnosis of the possible consequences of abstention from direct support of France was the correct one, were these considerations still ones that he should have taken into serious account in framing his policy ? For what, after all, was the paramount consideration ? It was the security of Britain against the German naval challenge. That was the real British object, and the one that Grey should have had always in the forefront of his mind as his guiding beacon in his negotiations with foreign powers. If this object, the countering of the German naval challenge, could best have been achieved by a policy of abstention from military support of any European power, however friendly, a British Foreign Secretary should not have allowed the pursuit of such a policy to be interfered with by hypothetical considerations of what Frenchmen or Russians might think or say about it. It seems clear that in such a case it was his duty to adopt the same attitude towards an European associate as that of Castlereagh towards the Tyrolese in Napoleon's time, when he wrote to tell them that " We wish you well ; but we cannot help you. We have ourselves to think of."

But Grey, by his own admission, had evidently not given critical scrutiny, with or without Admiralty advice, to the proposition that the despatch of a British Army to France was the best way, from the British point of view, of meeting the menace of the growing German Fleet. Instead, he had jumped straight away to the conclusion that military support was the only proper course of action. And we can see from his own book that fear of French dislike, hatred, and contempt were prominent, if not the sole, factors that led him to that conclusion. His object, if in fact it had ever been correctly defined as that of meeting the German naval challenge, had now changed. It was now very largely bound up with avoiding the possible reproaches of foreigners.

So mournfully mistaken an object to be held by a British Foreign Secretary could not be expected to lead him along a sound and unexceptional path in the pursuit of his country's interests. More than once, during the following years, we find a regard for foreign opinion governing his outlook. Thus, in his reply to Mr. Asquith's letter of apprehension regarding the Joffre and Fairholme conversations already alluded to, which ended with the warning that " the

French ought not to be encouraged, in present circumstances, to make plans on any assumptions of this kind," we find Grey answering, " it would create consternation if we forbade our military experts to converse with the French."

As the war drew close, the tendency became more pronounced. Though he persisted to the last in asserting that Britain retained a free hand in determining her foreign and strategical policies, uncommitted in any way, it is nevertheless undeniable that he, as Foreign Secretary, regarded himself as pledged and committed to the military support of France. For he has left it on record that if such support had not been given, as actually it was, he would have felt compelled to resign. The political and international consequences of such a resignation at such a time and for such a reason can well be imagined. It would have been a sobering revelation to the British public of that time to discover that their Foreign Secretary, whose salary they paid, could have got himself so betrothed to the interests of a foreign country as to contemplate placing those interests before the majority decision of his own Cabinet colleagues on the proposed British conduct of the war.

It should be clear from the foregoing what it was that led the Foreign Secretary up to the strange position that has just been described. It was the pursuit of a wrong object, due to inadequate thought in the first instance and a not very commendable refusal to seek full professional confirmation of his hasty assumptions in the second. The adoption of an unsound object at the start took him along the broad path of error from which he was never able to deviate until he reached the point of appearing to be more concerned for the welfare of France than for that of his own country. It is true that he attempted, long after he was too firmly committed to his course to be able to turn back, to give a reasoned explanation of his line of policy in terms of British security. Addressing the Dominion delegates at the Committee of Imperial Defence in 1911, Grey said that what he feared was the domination by a Power or group of Powers who might be strong enough to crush all competitors. This, he said, would leave Britain single-handed to face the conquerors who would have control of the whole Continent, and the situation would then be that " we should have to estimate a probable combination against us of the Fleets of Europe, not of two Powers, but of five Powers."

The implied suggestion was, of course, that Britain would not have been able to face the combined navies of five Powers. But was that really so ? If Grey thought it, it cannot have been on responsible naval advice. We have already noticed that between 1906, when he gave permission for the military staff talks, and 1911, when he delivered the above-quoted opinion, Grey had been associated with two First Sea Lords, Sir John Fisher and Sir Arthur Wilson. From all we know of Sir John Fisher, it is inconceivable that he could have advised the Foreign Secretary in this sense, for such advice would have been flatly inconsistent with Fisher's known hostility to a continental Expeditionary Force. As for Sir Arthur Wilson, the strategical views he unfolded before the Committee of Imperial Defence in 1911 are a sufficient indication that, in this matter, he was in general agreement with his predecessor. Grey's obvious belief that we could not compete with the fleets of a dominated continent could therefore have been no more than the amateur opinion of a landsman.

By what, then, could his opinion be justified? Certainly not by an appeal to history. Only a hundred years before, on the occasion of the last great war, Britain had actually found herself in this very position of facing the potential naval strength of the whole continent; and she had come through the ordeal, not only successfully, but with comparative ease. Not only did she retain the decisive command of the seas, but that command was not seriously challenged. It is true that efforts were made to effect superior combinations against her, but they came to little. The French Navy, demoralised by the Revolution and beaten time after time between 1794 and 1805, never recovered from Trafalgar. The Spanish Navy was utterly incompetent. The Danish Fleet was seized in 1807 and carried into captivity. The Russian line-of-battleships, though their ruler had promised his naval co-operation to Napoleon for England's undoing, nevertheless remained in the Baltic. The direful combination against the British Navy never, in fact, materialised, or even looked like materialising. And it was probably just as well for the European seamen that it did not. The history of allied campaigns on land is not particularly felicitous. That of allied combinations at sea is definitely unfortunate. Against a dominated continent in Napoleon's time, at any rate, maritime Britain easily held her own for more than ten years.

Since the Napoleonic precedent was all that Sir Edward Grey had to go upon, why then did he express so gloomy a view of a similar prospect in 1911? Could he have thought that the coming of steam and machinery had fundamentally altered the situation to Britain's disadvantage? If he did, a few moments' conversation with a competent naval officer should have been sufficient to disabuse his mind of any such notion. In the days of sail, the comparative simplicity of ship construction and of naval ordnance put the building of ships-of-the-line within the capacity of the smaller as well as the larger nations; while the ships' small size, judged by modern standards, multiplied the ports from which they could sail and whereat therefore they could usefully be built. In those days, the lesser Powers like the Dutch, the Danes, and the Swedes could and did own imposing fleets of battleships of a size comparable to our own.

The tremendous increase in tonnage, complexity, and cost that accompanied the introduction of steel construction and machine propulsion had the effect of shifting the balance of naval strength further away from the smaller nations towards the larger, by rendering the big mechanised battleships of the late nineteenth and early twentieth centuries practically beyond the resources and the purses of any but the Great Powers. By the time Sir Edward Grey was lecturing the Dominion delegates on the dangers of a hostile five-Power naval combination, that combination was in fact the largest effective one that could be mustered against us, and consisted of

Germany, Austria, Italy, France, and Russia. The Scandinavian and Dutch Navies had given up trying to emulate their larger neighbours and had taken to moderate-sized coast-defence monitors as their largest unit, while the Spanish and Turkish Navies were but shadows of their eighteenth-century selves.

Naval power had drifted into fewer hands, and particularly into British. Britain's huge mercantile marine, with its accompaniment of immense and unrivalled shipbuilding resources, gave her an enormous advantage, especially over the smaller maritime nations. These latter would have been of little use as battleship builders for a long term of years after they had been dominated by a victorious Germany. Their building slips would have had to be enlarged, their graving docks increased in size, their harbours dredged, their workshop equipment augmented to handle the bigger-scale work to be undertaken. It would have taken probably eight to ten years before these countries could have even begun to build battleships of the largest size—and it has to be remembered that in 1911 large battleships were universally regarded as the undisputed citadels of naval power. All this time, Britain could have been making steady progress in the increase of her Fleet. Germany might have instituted a more immediate expansion of naval building in the French, Italian, and Russian shipyards, had she been able to capture them intact. But this she could not necessarily count on doing, while the inevitable confusion and disorganisation, consequent on national defeat and overthrow, must infallibly have introduced a serious delay before these conquered yards could have been restored to full output, if, indeed, their shipwrights and other workmen could have been induced to put forward their best efforts for the foreign victor. And even if we count the members of this potential five-Power combination at their highest respective standards of efficiency, those standards were very unequal. The Austrian Navy's reluctance to leave its ports during the war of 1914–18 was only equalled by that of its Italian opponent. The Russian Navy had already in 1904–5 demonstrated its extreme incapacity. The real backbone of an anti-British naval combination would in reality have been confined to the Navies of Germany and France, the two deadly rivals; and the disinclination of the latter's Fleet to make this very combination against us is being manifested at this very moment. Since we can be fairly sure that at the time he expressed his opinion to the Dominion delegates, Grey had not taken the Admiralty into his confidence or sought their advice, it is most unlikely that he can have been acquainted with these aspects of the matter, and therefore aware that, all things considered and bearing in mind that the British would have enjoyed the considerable advantage of unity of effort and control, there was no real reason to think that they could not have kept ahead of any European naval competition, if they had really put their backs into it.

It would have cost money. Most certainly. But what was the alternative? Nothing else than the policy of military participation in Europe which Sir Edward Grey had chosen to embrace. And that, as it turned out, was vastly more expensive still. The policy of

NARVIK

Above. The harbour from the air after the first action.

(*British Official photograph.*)

Below. After the second action. H.M.S. Cossack (centre) aground, H.M.S. Forester (left) under way.

(*British Official photograph.*)

forestalling competition on the sea by military action on land led to two million British soldiers being employed in France and Flanders during 1917 and 1918, and the cost of maintaining these armies would have sufficed to give us something like six hundred first-class battleships, a number very greatly in excess of any conceivable fleet expansion necessary to defeat an attempt to outbuild us at sea.

" Thinking costs nothing," as Lord Haldane was fond of pointing out. But lack of thought may lead to the loss of half a million men on land battlefields, when the bloodless construction of a hundred Dreadnought battleships might have been equally effective for the object in view. But Sir Edward Grey, the Foreign Secretary of Great Britain between 1906 and 1914, had unfortunately failed to think that object out and thereafter to keep it carefully in sight. Nor, for that matter, had Haldane himself, since he was one of the principal aiders and abettors of Sir Edward in championing the despatch of an Army to the Continent.

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CHAPTER IX.

THE SITUATION IN THE EASTERN MEDITERRANEAN.

THE POLITICAL BACKGROUND.

AT first sight the present struggle in the Mediterranean is simply what Fascist spokesmen and propagandists from the Duce downwards have declared it to be, viz. :—an attempt by a " young," growing, and aggressive Italy to oust first France and then Great Britain (both *ex hypothesi* " elderly " and inactive Powers) from their naval primacy in Mediterranean waters. But it is questionable whether the Fascist attack on Great Britain and France can be explained quite so simply. Had the British remained as uninterested in the Mediterranean as they were until the middle of the eighteenth century, had Spain and Turkey retained the naval might that made them the leading sea-powers in the Middle Sea in the sixteenth century Fascist Italy would have been equally hostile to their predominance. The fact is that the political doctrines of Fascism involve what may fairly be termed a revolt against geography. The weakness of Italy's geographical and economic position had been a favourite theme of Italian naval and military experts long before Fascism was heard of. Italian statesmen of the pre-Fascist period had made many attempts to strengthen it by a policy of watchful opportunism, sometimes carried so far as to provoke distrust. Still it must be admitted that the spirit of their foreign—and colonial—policy was defensive. It was left for the Fascist dictatorship to give it a violently aggressive turn.

The geographical conformation of Peninsular Italy made that part of the newly united Italian kingdom exceptionally vulnerable to naval attack. Its chief railways followed its coasts and were exposed to bombardment. Its economic situation was unsatisfactory. The lack of raw materials which was everywhere a handicap to Italian industrial progress was particularly marked in the south. The soil, hard pressed by some twenty-five centuries of close and sometimes unscientific cultivation, could not support the dense and fertile population outside a few favoured areas. The surplus either sought employment in Northern Italy where a more abundant water supply, an ancient and widespread system of irrigation, industrial development and greater attention on the part of successive Governments had produced somewhat easier conditions of life, or else emigrated. Emigration increased with the increase of the population. The emigrants went to the United States, Argentina, and other South American countries and less frequently to France and Tunisia. Most sought employment as unskilled or semi-skilled labourers in richer countries, lived frugally, and sent a large proportion of their savings to their families in Italy. Their remittances and the tourist traffic helped Italy to pay for the raw materials, e.g. wheat, coal, copper, rubber, and petroleum, which her economic and military needs demanded. Even so the Italian standard of living was lower than that of the principal nations of Western and Central Europe. The population of the South had been disappointed by the very slow improvement in economic conditions and disappointment caused disaffection and discontent. With the increase of population social unrest and political instability became permanent features of the Italian scene.

Italian foreign and colonial policy was therefore defensive. The young kingdom had acquired its first colony at Assab on the Red Sea coast of Africa in 1869, but this acquisition was unfit for settlement, and Italian eyes turned towards Tunisia. Many Italians had settled there and the decay of Turkish and the weakness of native rule seemed to promise Italy a foothold in this strategically and economically important region of northern Africa. Unfortunately it fell to France, which was now engaged in repairing the reverses of 1870 by an energetic policy of colonial expansion. The French occupation of Tunis in 1880 drove Italy into the arms of Germany and Austria, and the signature of the Triple Alliance in 1882 marked the beginning of a long period of bickering between the "Latin sisters." The Alliance, however, relieved the Italian Foreign Office of its haunting fear of isolation, and the Anglo-Italian naval understanding of 1886 improved Italy's chances of obtaining African colonies.

The evacuation of the Sudan by its Egyptian garrisons in 1884–86 gave Italy the opportunity of expanding her small holding at Assab into the colony of Eritrea and the protectorate of Italian Somaliland. In the Mediterranean Italian eyes were fixed on Turkish Tripoli, but the fear that Austro-Hungarian appetites might be whetted by an attack on Turkey prevented even the energetic Crispi from taking a step which might have brought the Austro-Hungarians into Albania. The hope that Abyssinia might become an Italian colony and the belief that its acquisition would relieve Italy's lack of raw materials and the pressure of population on her soil inspired Crispi; and even if he and his advisers had been better informed as to Abyssinian resources, considerations of prestige would have impelled them to take part in "the scramble for Africa" which other Powers were dividing so energetically. The disaster of Adowa in 1896 dissipated these hopes and all but led to the abandonment of Eritrea and Italian Somaliland.

The next stage in the history of Italian expansion came in 1911, when the Italian Government, whose information indicated that their ally Germany was likely to obtain concessions from Turkey in Tripoli (now Libya), decided to seize that derelict province. By that time the Triple Alliance had lost much of its original popularity. Franco-Italian bitterness was less marked. Italy had no sympathy with the German attempt to rival Great Britain on the seas; Austria-

Hungary was disliked chiefly because the southern Tyrol and other ethnographically Italian regions remained under Hapsburg rule. Above all neither Germany nor Austria-Hungary had shown much regard for Italian susceptibilities. The veto imposed on Italian operations in the Adriatic by the Austria-Hungarian Government did not strengthen the Alliance.

Thanks to the outbreak of war between Turkey and the Balkan League in 1912 Italy emerged from a conflict which had threatened to drag inconclusively on for years, with Libya and a group of islands in the southern Aegean in her hands. These islands, best known as the Dodecanese,* were inhabited mainly by Greeks. Italy was to have returned them to Turkey when the last Turkish officers and officials had quitted Libya, but before these conditions were fulfilled the outbreak of the general War in 1914 changed the situation. Italy refused to carry out her obligations as an Ally of Austria-Hungary and Germany on the ground that the former power had made war on Serbia (thus precipitating a general conflict) without consulting the Italian Government, who were kept completely in the dark as to the intentions of their Germanic Allies. The initial successes of the Germans and a certain regard for international conventions prevented the Italian Government from yielding to the temptation to join Great Britain and France immediately; but in May, 1915, the agitation led by Gabriele D'Annunzio and Benito Mussolini brought them into the war.

During its course Italian claims were formulated and were recognised by the Allied and Associated Powers in the secret Treaties of London and St. Jean de Maurienne. Article XIII of the Treaty of London gave Italy the right to claim some equitable compensation should Great Britain and France add to their colonial empires at the expense of Germany,

> " particularly as regards the settlement in her favour of the questions relating to the frontiers of Libya, Eritrea, and Somaliland, and the neighbouring colonies of France and Great Britain."

The Treaty of St. Jean de Maurienne provided for the cession to Italy of a large area in southern Asia Minor. It also recognised that Central Albania was a sphere of Italian interest. The British and French Governments, however, refused to honour their promises regarding Asia Minor on the ground that their co-signatory Russia, which was to have shared in the partition of Turkey, had defaulted by becoming Communist and abandoning the Allies. Their own default, although open to obvious criticism, may well have saved Italy from a disaster of the kind that overtook Greece. The Italian nation, financially hard hit and convulsed by internal dissensions, was unready for major colonial commitments, and had always been more interested in regaining the natural frontiers of Italy than in adventures in Asia Minor. Now that Istria, the Southern Tirol and the Trentino had been won the majority of the public would have preferred to give its undivided attention to internal problems. Unfortunately, as it proved, Mr. Lloyd George's championship of

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* Because the chief of them are twelve in number.

Greek, and opposition to Italian claims in Asia Minor, and President Wilson's maladroit appeal to the Italian people over the heads of their Government left much bitterness behind. This was increased by friction with the French and Yugoslavs, which led to incidents at Fiume where D'Annunzio set up a Government of his own in September, 1919.*

The final peace settlement displeased Italian opinion. Italian claims to Dalmatia did not correspond to ethnographic realities, but after all the propaganda about the "Italianity" of that region many Italians were disappointed at obtaining no more than a small enclave around the town of Zara and four small islands. Fiume was neutralised, but the suppression of D'Annunzio's Government by Italian troops after the signature of the Treaty of Rapallo in November, 1920, wounded Italian sentiment. The expulsion of the Italian army of occupation from the greater part of Albania, the subsequent treaty recognising the independence of that country and leaving only Saseno island in Italian hands, and the abandonment of most of Libya to the Senussi gave the Fascists abundant political ammunition. In the Levant, Italy had agreed to cede the Dodecanese to Greece with the exception of Rhodes, and two small islands which were to remain Italian for fifteen years. They were then to be the subject of a plebiscite if Britain ceded Cyprus to Greece. Italy denounced the agreement shortly before the Fascist march on Rome. The Dodecanese remained in Italian hands. Eventually the islands of Leros and Rhodes were strongly fortified and provided Italy with bases from which British, Greek, and Turkish communications might be threatened by sea and air.

THE FASCIST RÉGIME.

It was natural that the Fascists, who were nothing if not Nationalists, should have kicked against the pricks of the Peace Treaties. Having re-established order in Italy they began the reconquest of Libya and looked round for opportunities of further aggrandisement. During the earlier years of their *régime* what was known somewhat satirically as "the doctrine of the opposite coast" was extensively ventilated in their Press. It was summarised as follows in *The Times*.†

> "To cover the shin of the Italian leg against attack Corsica was needed. The calf must be protected by Dalmatia or at least Albania; Libya protected the instep, but Malta and Tunis were necessary to protect the toes from being trodden on. And so it went on. The occupation of Eritrea logically entailed that of Yemen. The Balearic islands 'ought' to screen Sardinia. Luckily for Italy other naval Powers did not embrace this enticing doctrine."

This was the strategical argument for Mediterranean expansion. There were others. Fascist publicists made most of the "demographic problem" which arose from the pressure of population on the mother-country. The Italian population had risen from

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* The stamps which he issued bore the motto "Hic optime manebimus."

† *Loc. cit.*, January 3, 1941.

25,000,000 in 1861 to over 48,000,000 in 1935. A large area of Italy consists of mountains unsuitable for cultivation. The limitation of immigration by the United States checked the Italian emigrant outflow which had reached a total of 718,000 in 1905, and frequently exceeded half a million in the years before the war.* The number of Italian emigrants to the United States fell from 142,000 in 1921 to 34,000 in 1926. France still took many Italians chiefly for employment in the devastated areas, but as restoration proceeded the number admitted lessened. Fascist " demographic " arguments in favour of expansion were, however, vitiated by the declared policy of Fascism. This aimed at the stimulation of the birth rate and the restriction of emigration. A series of measures adopted from 1925 onwards were devised to encourage large families by a variety of methods. These did not, indeed, prevent a slight but appreciable decline in the birth-rate after 1930; but the drainage of malaria-breeding marshes and improved sanitation combined with the official discouragement of emigration to maintain a higher rate of increase than in almost any country in Europe. Signor Mussolini has frequently proclaimed that Italian power must depend on a large, healthy, and prolific population, and in 1934 he declared that the idea that an increasing population could create a state of misery was not worth refuting. At the same time the existing Italian colonies with the exception of a small part of Libya do not offer much scope for white settlement, and even in Libya the Italian programme only provided for " the settlement, in the course of twenty-five years, of a number equivalent to only one year's natural increase of the population of Italy." † It is impossible to resist the conclusion that the Fascist Government have deliberately encouraged the growth of the population in order to strengthen their case for expansion at the expense of weaker nations.

Other Fascist arguments for expansion were the lack of raw materials in Italy which the African colonies could not supply; the failure of the Allies to fulfil the secret undertakings of the last war and the consequent " right " of the Italian State to demand compensation; and the claims based upon " the natural aspirations of the Italian people," the " Roman heritage," the " dynamism " of the Fascist *régime* and other such sonorous abstractions. Mussolini himself had affirmed that the Fascist ideal was " the will to power and domination " and the " right " of Italy to use force to obtain the means of imperial development when these were denied her by the selfishness of " egoistic " and " satisfied " states was a commonplace of Fascist oratory. But the main motive for Italian imperialism, particularly in the Mediterranean, was strategical. Italians could plead more genuinely than their German allies that they were " encircled." Mussolini's phrase that the Mediterranean was *via*—a " way "—for other maritime nations, but *vita*—" life itself "—for Italy was true in a sense. The outlets of the Middle

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* About half were permanent emigrants. The rest were engaged on temporary jobs, e.g. harvesting in Germany and public works in France.

† *The Italian Colonial Empire.* Royal Institute of International Affairs, p. 15, December, 1940.

Sea were all dominated by Great Britain or by powers friendly to the British. France and French Africa lay on the flank of Italy's sea communications with the Atlantic. The occupation of Libya did strengthen the position of Italy in the waist of the Mediterranean, but not sufficiently to abate the volume of the unofficial agitation fostered by the Fascist Government for the cession of Tunis. These claims, it was noticed, grew more strident whenever Italo-French relations became at all strained. On the other flank of the Italian Peninsula the rivalry between France and Italy involved Yugoslavia, and although the contentious question of Fiume was eventually settled by the Nettuno agreement (ratified in 1928) the Yugoslavs remained suspicious of Italian designs in the Balkan Peninsula.

Similar suspicions marked the attitude of Italy towards the Yugoslavs. The Little Entente of which the Yugoslav Kingdom was a member was regarded, not quite accurately, as a French creation. France was believed to have concluded a military convention with Yugoslavia providing for common action in the event of Italian aggression. The Fascist Government held, not without some justification, that Yugoslavia hoped to lay hands on the feeble Albanian State.* These fears and the desire of Italian expansionists to obtain a foothold in the Balkan Peninsula led to the signature of the Treaty of Tirana in November, 1926. By this instrument Italy and Albania recognised that any " disturbance of the political, juridical, and territorial *status quo* of Albania " was contrary to their reciprocal political interest to safeguard which they undertook " to give their mutual support and collaboration." In a Note attached to the Treaty Italy acquired the right to intervene in the external or internal relations of Albania at the request of the Albanian Government. Next year the two countries signed a Treaty of Defensive Alliance for a period of twenty years.

An alliance between two States of such unequal strength was equivalent to a protectorate exercised over the weaker by the stronger. The poverty of Albania facilitated Italian commercial and political penetration. The Albanian army was trained by Italian officers. The British officers who had been charged with the organisation of the Gendarmerie were " squeezed out." The Treaty of 1927 made Italy the mistress of the Adriatic and relieved Italian fears for the safety of the exposed eastern coast of the Peninsula. It greatly strengthened Italian influence in the Balkans.

At this point in the history of Italian expansion the Fascist Government might have rested for a while on their oars and considered the possibility of following a new course, less adventurous, but more advantageous to the real interests of Italy. They had acquired the control of the Adriatic. Their reconquest of Libya was making rapid progress and had already strengthened their position in the central Mediterranean. Their retention of the Dodecanese had given them a useful base in the Levant. These advantages had been obtained by methods which had aroused some suspicion in

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* A Yugoslav invasion of Albania was frustrated by the British Government in 1920. President Zog, afterwards King, was restored by Yugoslav aid in 1924, and an insurrection fomented by Yugoslavia in 1926 forced him to look to Italy for support.

France and the Balkan countries, but not enough to imperil the foreign relations of the kingdom. At the same time the military potential of Italy remained low by comparison with that of other European Great Powers. The exploitation of the hydro-electrical resources of the Alps and Apennines to make up for the lack of fuel had reached or nearly reached its limit. The lack of raw materials persisted. The improvement in the supply of home-grown wheat was largely counter-balanced by the steady increase of the population. The outlets from the Mediterranean and their chief approaches remained in the hands of stronger naval Powers. In a contest of ship-building Italy must be beaten by France, not to mention Great Britain. In these circumstances the prospects of further Italian expansion in the Mediterranean were small. The Fascist *régime* had strengthened Italy but not to the point of making the country capable of fighting a first-class war unaided.

Two possibilities were open to the Duce and his party. One was to arrive at a firm understanding with Great Britain and France by which Italy could rely upon their support in the event of attack from the north-east, and could obtain other advantages in the shape, for example, of an improved access to the colonial raw materials of which she stood in need. Here the chief difficulty was financial. The historians of the war that broke out in 1939 will have to study the responsibilities of high finance in America, Great Britain, and France for one of its underlying causes. It was all very well for statesmen in these relatively wealthy countries to insist that Italy and other " have nots " could purchase their raw materials without impediment from the " haves," but their advisers seemingly did not realise the difficulties that confronted the holders of depreciated currencies. The financial crisis that began in the United States in 1929 and spread throughout the world emphasised these difficulties and gave a powerful impulse to the growth of National-Socialism in Germany. The second alternative open to the Fascist Government was to maintain an attitude of alert and predatory opportunism in the hope that some combination of circumstances might turn up to their advantage. They preferred to follow this line of policy, and the rise to power of Hitler presented them with the chance for which they had waited.

It must, however, be added that in making their choice they were influenced by their own political dogmas and by the personal preferences of their chief. Fascist doctrine was less rigid than were the political philosophies of Communist Russia and Nazi Germany ; but it was strong enough to give the Party a bias in favour of the Germans—little as the *Tedeschi* were liked by most Italians. More important was the personal influence of the leader whose ascendancy over his countrymen almost justified the saying that most Italians were not Fascists but Mussolinists. The Duce himself cherished a hatred of the doctrines of the French Revolution and of the Liberalism to which they had given birth. All available evidence indicates that he was furiously jealous of Great Britain. But as long as he hoped to play off the British against the French, and while the Italian people regarded Great Britain as a traditionally friendly Power, he was ready to pay lip service to Anglo-Italian friendship. Thus on June 5, 1928, he told the Senate

> " In saying that the friendship between Great Britain and Italy is traditional one is not repeating a commonplace but expressing a reality. The friendship between the two peoples is profound. . . . One of the cardinal points of Italian policy is friendship with Great Britain."

The Abyssinian crisis furnished him with an opportunity of exciting popular opinion against Great Britain. The failure of the limited sanctions applied against Italy as an aggressor nation by the League with the strong support of Great Britain enabled him to claim a great political success and to strengthen his personal position. During the next three years Italian policy became increasingly hostile to France and Great Britain and increasingly pro-German. In Spain Italians and Germans combined in supporting the Nationalists with men and arms. At one time some 45,000 Italians were in the field against the Republicans and by no means all were volunteers. The activities of allegedly Spanish submarines in the Eastern Mediterranean aroused British and Turkish concern. The concessions to the Italian colony in Tunisia which the French Government made after negotiations with Rome in January, 1935, were found insufficient and denounced by Italy in December, 1938. In that year, in spite of the Duce's public statement that the victory in East Africa had put Italy in the category of satisfied nations, a fresh campaign was opened against France demanding the cession of territories in Africa and Europe. The Italian Chamber shouted for Tunis, Corsica, and Nice on November 30, 1938, and on March 26, 1939, the Duce stated that the questions at issue between Italy and France were " of a colonial character," and could be enumerated as " Tunisia, Jibuti, and the Suez Canal." On Good Friday, April 8, 1939, the Italian Government met King Zog's refusal to make political and economic concessions which would have given Italy complete control over Albania, by invading his country. Practically no resistance was offered. On April 12 Signor Mussolini proclaimed the inclusion of Albania in the Italian Empire. The signature of the Italo-German Treaty of Alliance in May, 1939, marked the further development of the policy of aggression. On the outbreak of war it was clear that Italy would become a belligerent as soon as her Government judged the military situation to be favourable to her intervention. The breaking of the French lines on June 9–10 last year decided the Fascist Government to throw in their lot with the supposed victors. They may now be regretting their choice.

While the Italian decision to intervene came when the first campaign on the Continent had already been decided it must not be forgotten that for at least three years before the outbreak of war the Fascist Government had been making military preparations in her Mediterranean and other colonies that could only be explained by aggressive intentions. Thus Libya with a population of less than 850,000 souls was garrisoned in 1938 by three Army Corps of Italian and African troops. Its ports were being strongly fortified as were its Tunisian and Egyptian frontiers, while the Air Force was the strongest in North Africa and could be rapidly reinforced from Italy.

In the words of a writer in *The Times*, Libya and Italian East Africa as well were being converted into what military parlance calls "areas of assembly," where the Fascist forces were being massed for attack on richer neighbour countries.* And when Signor Mussolini declared war on Great Britain and France last June he left no doubt about his reasons for his aggression.

> "We are taking up arms," he said, "after having solved the problem of our land frontiers, to settle that of our sea frontiers. We want to break the territorial and military chains that are strangling us in our sea, for a people of 45,000,000 inhabitants is not truly free if it has not free passage to the Ocean."

In other words the Duce had committed his country to war on the side of an aggressive, unscrupulous and more powerful neighbour because he resented the limitations imposed on Italian sea-power by the geographical configuration of the Mediterranean and by the greater wealth of Great Britain and France.

THE BALKANS AND TURKEY.

Of the six Balkan nations including Turkey, Yugoslavia and Albania are entirely Adriatic in their maritime orientation. Rumania and Bulgaria are Black Sea littoral Powers. Greece is a Mediterranean Power with coasts washed by the Adriatic and Aegean arms of the main Mediterranean sea. Turkey is both a Mediterranean and a Black Sea Power, and has resumed full sovereignty over the Bosporus and the Dardanelles, and the intervening Sea of Marmara. Without going into retrospective historical detail it may be said here that the first five of the Balkan States have been formed at various times since the early nineteenth century by amputations from the Turkish Empire and that Yugoslavia and Rumania received important additions to their territory through the break up of the Austro-Hungarian realm. Turkey, though she lost her Arab provinces and most of her Balkan provinces, retained her footing in Europe, and under the republican dictatorship of Ataturk, became a compact homogeneous state with large potential resources and a strong and disciplined national spirit. The Balkan States which fared worst in the repartition of territories were Bulgaria, which grasped at too much and lost her access to the Aegean, the southern Dobruja and a great part of the territory which she had claimed in Macedonia, and Albania, which remained as powerless and as poor as when the infant state emerged from the turmoil of the Balkan War of 1912.

The years 1919–24 were marked by reconstructive activities in all the Balkan States, e.g. the settlement of Bulgarian and Greek refugees under the auspices of the League of Nations and the agrarian reforms in Rumania, and to a less extent in Bulgaria, Yugoslavia, and Greece. The year 1920 also saw the formation of the Little Entente of Czechoslovakia, Yugoslavia, and Rumania, which became allies with the object of preventing the return of the Hapsburgs and of protecting one another against Hungarian irredentism.

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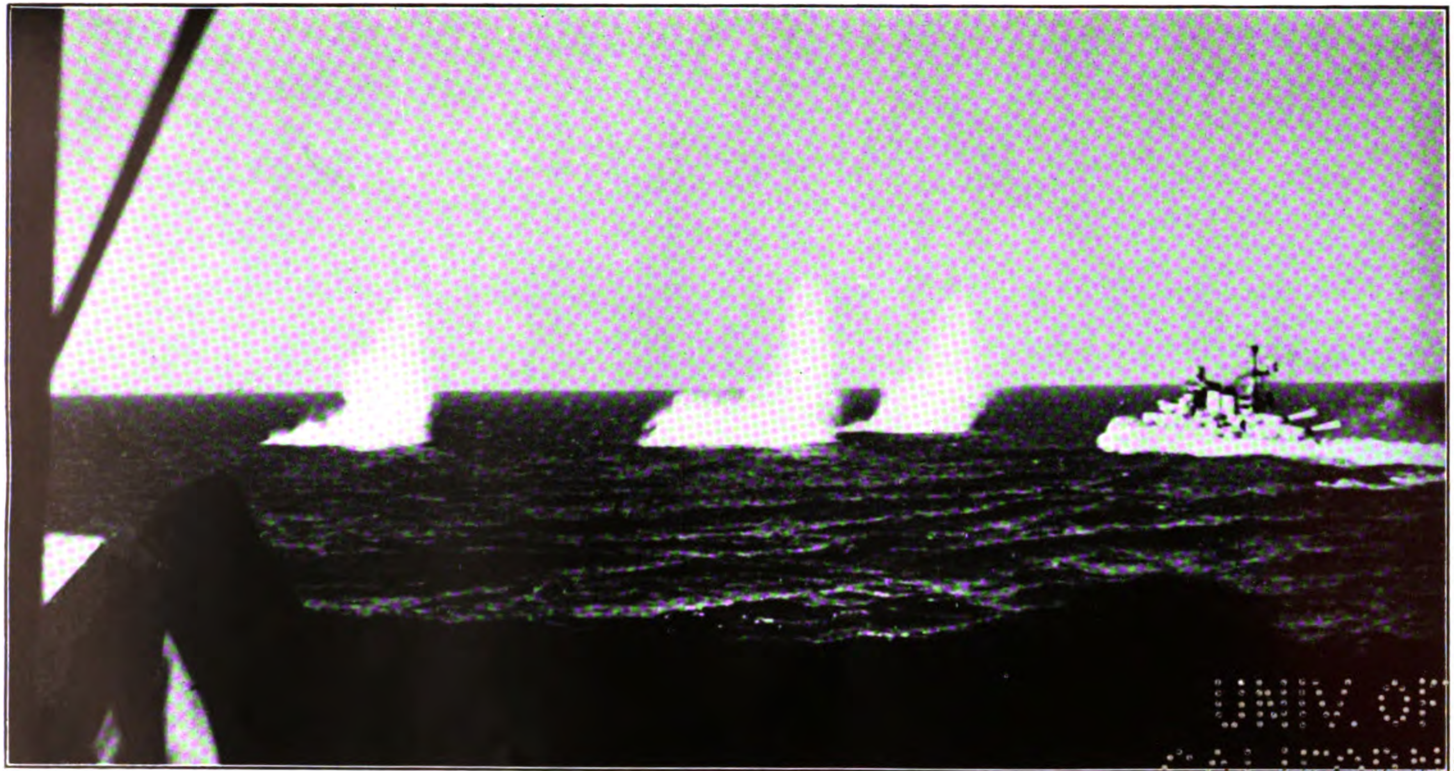
* *Loc. cit.*, January 3, 1941.



British salvo falling just over Italian battleship Conte di Cavour, July 10, 1940.

(*Associated Press photograph.*)

UNIV. OF CALIFORNIA

From 1924 onwards, however, Franco-Italian rivalry and the economic crisis prevented any close co-operation between the Balkan and Danubian states in general. Bulgaria remained at bad terms with her neighbours until 1933 when the initiative of King Boris paved the way to a better understanding between Bulgaria and Yugoslavia. Even so the redoubtable Macedonian Revolutionary Organisation continued with much furtive Italian encouragement to conspire against Greece and Yugoslavia from the Macedonian provinces of Bulgaria. It was not until 1935 that a military movement in Bulgaria put an end to the *imperium in imperio* exercised by this dangerous body in the Rhodope and Pirin Mountains. But by this time Turkey, Greece, Yugoslavia, and Rumania had come to a common understanding without Bulgaria which was not prepared to abandon her revisionist claims. The Pact of Mutual Understanding, signed at Athens on February 9, 1934, by these Powers, did not include Bulgaria or Albania. The four powers mutually guaranteed their Balkan frontiers and agreed to consult one another in the event of any danger to their common interests. A Protocol which was published later provided for assistance against any Balkan State which joined a non-Balkan Power in aggression against any one of the four signatory Powers. The value of this Protocol was doubtful since both Greece and Turkey made it clear that the Pact must not involve either of them in war with any major Power.

Here was the weak point in the Balkan situation. Even Greece and Turkey, which had put aside their old quarrels and concluded a Treaty of guarantee and mutual assistance in 1933, could not agree to assist one another against attack by a Great Power. Turkish foreign policy was based primarily on the maintenance of a good understanding with Russia, without which the Republic would be exposed to constant danger on its eastern borders and to a ruinous competition in armaments. Turkish statesmen with the probable exception of Ataturk believed that Russia had ceased to be aggressive and pointed to the Soviet "Convention for the Definition of the Aggressor," which the four Balkan States of the Pact and other neighbours of Russia had accepted, in support of their belief. This tied the hands of Turkey in the event of a Russian attack on Bessarabia. Equally the Little Entente, even after the Nazi Revolution in Germany, did not extend the military obligation of its members (apart from action within the framework of the Covenant of the League of Nations) beyond mutual consultation and mutual defence against Hungarian revisionism.

The developments that followed the conquest of Abyssinia and the outbreak of the Spanish Civil War should have impelled the Balkan Governments to arrive at a general and comprehensive agreement for mutual defence. That they failed to do so was due to their increasing economic dependence on Germany which secured a larger share of their export trade every year, and to their consciousness of their extreme military weakness. By comparison with the dictatorships these states were unarmed. Yugoslavia could not defend her northern provinces against mechanised armies. Rumania was even more vulnerable on the side of Russia. Northern

Bulgaria presented no obstacles to an invader controlling the Danube. Greece and Turkey, the only two states which were geographically well protected against invasion by land, remained exposed to aerial and naval attack. All these states were dependent on foreign countries for their armaments. The Western Powers could spare them little while they were themselves rearming and they were consequently compelled to turn to Germany for a large part of the arms and munitions which they imported.

The annexation of Austria by Germany, the elimination of Czechoslovakia, the seizure of Albania by Italy followed in due course. This last aggression provoked the Western Powers to give Greece and Rumania unilateral guarantees of their territorial integrity and political independence but the value of the guarantee to Rumania depended entirely on the capacity of Poland and France to resist German attack. Similarly the value of the Anglo-French agreement with Turkey which was developed into a defensive alliance in October, 1939, depended on the attitude of Russia, since a Protocol attached to the Treaty provided that Turkey's obligation to assist the British and French in the event of their being involved in war through the aggression of a European Power in the Mediterranean area or through their guarantees to Rumania and Greece should not involve her in war or danger of war with the U.S.S.R. In the Balkans the growth of German Power led to the conclusion of a non-aggression Pact at Salonika on July 31, 1938, whereby Bulgaria agreed not to seek any change in her frontiers by force, and was liberated by the four Balkan Powers from the military restrictions imposed on her by the Treaty of Neuilly.

But there co-operation ceased. The Russo-German Pact that immediately preceded the Nazi attack on Poland and the declaration of war by Great Britain and France, the overthrow of Poland, and the Russian attacks on Poland and Finland, caused the utmost alarm in the Balkans. On February 4 the four states of the Balkan Entente passed resolutions in conference in Belgrade emphasising their neutrality and the importance of economic co-operation. But no staff talks followed these resolutions, and in spite of the efforts of Turkey to bring about a more positive understanding between the four states, nothing was done until the German attacks on Norway, Denmark, and the Low Countries showed that neutrality offered no safety to small nations. With the collapse of France all talk of co-operation ceased. The Russians occupied Bessarabia and Bukovina. Rumania repudiated the Anglo-French guarantee, but this did not save her from territorial demands from Hungary and Bulgaria, from an Italo-German award compelling her to cede large territories to Hungary, and finally from a German military occupation.

The stage was now set for an Italian attack on Greece. This opened on October 28 when the Fascist Government served an ultimatum on the Greek Prime Minister, General Metaxas, demanding the surrender of various (unspecified) strategical points to the Italian Army. The Italian Government had expected a surrender or a token resistance. To their surprise the Greeks defeated their vanguard—the first defeat in the field sustained by the forces of the

Axis—and before the end of the year had driven the better equipped Italian Army out of a great part of southern Albania with the aid of the British Navy and Air Force, and were threatening Valona and Elbasan. The value to the British and Allied cause of the Greek resistance cannot be exaggerated. It has delighted the Turks and the Arab world; it has encouraged the Yugoslavs to contemplate resistance should they be attacked by the Axis; it has heartened those elements in Bulgaria who oppose surrender to German threats.

In spite of the Russo-German Agreement of August, 1939, the Turkish Government hoped to be able to reconcile their proposed Treaty with France and Great Britain with a further agreement with Soviet Russia. Such an agreement was certain to be concerned with the question of the Straits. These had been demilitarised and to some extent internationalised by the Straits Convention of July 24, 1923, which had been embodied in the Peace Treaty of Lausanne between Turkey and the Allied and Associated Powers. The Treaty "represented a compromise between the Western Powers, who wanted complete freedom of the Straits, and the Black Sea Powers,* notably Russia, who remembered the Allied intervention on behalf of the White Russian armies in the Black Sea basin, and desired the strictest control over the entry of warships into the Black Sea. The Russian representative, M. Chicherin, signed the Convention under protest, but no serious difficulty arose for the next eleven years. In 1934, the Turks were alarmed by a speech by Signor Mussolini declaring that Italy's historic objectives were in Asia and Africa. Next year they raised the question of the refortification of the Straits at Geneva, and in 1936 they addressed identical notes to the Powers which had signed the Straits Convention and to the League of Nations requesting the revision of the Convention in the interests of Turkish security. The request was fully justified by the breaches of Treaty obligations in which Germany, Italy, and Japan (the last two guarantors of the Lausanne Convention) had recently indulged. The Convention † signed at Montreux on July 20, 1936, gave Turkey the right to fortify and garrison the Straits which thus became subject to full Turkish sovereignty. It also improved the position of Russia since in time of war no large fleet of a non-littoral state could enter the Black Sea without the invitation of the Turkish Government, while Soviet warships could enter or leave the Straits. At the same time if Turkey is at war or considers herself in imminent danger of being involved in war, the passage of foreign warships is left entirely to her Government's discretion.

The Russian Government had smiled upon the Turkish Agreement with France and Great Britain in May, 1939. It was, therefore, something of a shock to the Turkish Foreign Minister, M. Sarajoglu, to find that Russia now proposed new conditions incompatible with the obligations undertaken by Turkey at Montreux and in her negotiations with France and Great Britain. These the Turks would not accept. The Treaty of Angora was duly signed, but the attitude of the U.S.S.R. remained unfriendly to Turkey until last autumn when the relations between the two countries began to improve. By this time Russia had reached the Danube through her seizure of Bessarabia, and had insisted on being represented on the new Danube Commission set up by Germany. The Russian position on the most important mouth of the river and the German *de facto* control of navigation over the rest of its course seemed likely to produce a conflict of interests, since nothing could please Russia less than the entry of German submarines and torpedo-craft into the Black Sea, while Germany with her Hungarian and Rumanian satellite States cannot be content at the Russian hold over the Kilia mouth. This conflict of interests, however, is unlikely to develop further as long as Russia remains convinced of her complete inability to resist German attack, and Germany has not abandoned hope of winning the war against Great Britain in the West and on the Atlantic. Its most probable consequence, so far as can be foreseen at present, will be to deter the German General Staff from embarking on a campaign in the direction of the Straits until its chiefs have satisfied themselves that Russia will not intervene. The attitude of the U.S.S.R. remains enigmatic, but it is at least probable that the Soviet Government would prefer Turkey to Germany as the guardian of the Straits, though they might not help the Turks to resist a German drive towards the Dardanelles or Salonika. It also remains to be seen whether the occupation of the Rumanian oilfields will not satisfy the Germans who must know that, even if they could reach the oilwells of Mosul, they would find them in ruins. Meanwhile the Turks remain on guard.

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* *Royal Institute of International Affairs.* Information Department Paper, No. 29.

† See "Brassey," 1937, p. 330.

EGYPT AND THE ARAB COUNTRIES.

The downfall of France created a situation in Syria which interested both the British and Turkish Governments. Both feared an attempt on the part of the Italians to establish themselves there, and on July 1 the Foreign Office issued a statement, which had been approved by the Turkish Government, that His Majesty's Government would not allow Syria or the Lebanon to be occupied by any hostile Power or to be used as a base for attacks on those countries in the Middle East which they are pledged to defend (i.e. Turkey, Iraq, and Egypt), or to become the centre of disorders which might threaten these countries. The Italian Armistice Commission in Syria was less successful in bending the French authorities to its will than the Duce had expected, but when, after three anxious months, the Italians attacked Greece, it seemed possible that they might be contemplating a descent on Syria after the expected surrender of the Hellenes. The disastrous failure of the attack relieved Turks, British, and Iraqis of these anxieties, and Syria and Lebanon can only become a source of danger in the unlikely event of the complete surrender of the Vichy Government and the overseas territories which it controls to German exigencies.

British relations with Egypt are governed by the defensive alliance of 1936. Here the situation has improved enormously since last June, when the defeat of France and the relative weakness of our garrison combined to shake the nerve of Ali Maher Pasha, the then Prime Minister. His successors, Hassan Sabri Pasha, whose sudden death on November 14 deprived his country of a distinguished public servant, and Hussein Sirri Pasha, have shown perfect loyalty to the alliance and have rendered all the assistance to our forces which was required of them. Egyptian troops were not called upon to take part in the campaign, but the Egyptian anti-aircraft batteries have done their share in repelling Italian raids on Alexandria, and the Egyptian Army and Police have guaranteed the safety of our communications against any Fifth Column activities. Such is the political situation in the Eastern Mediterranean to-day. It would be folly to deny that it contains elements of danger, notably in the unstable Balkan Peninsula and the Black Sea basin, where Russia's intentions are still conjectural. But the heroic resistance of Greece and the destruction of the Italian Army that invaded Egypt have had an astonishingly tonic effect on our friends and have correspondingly depressed our enemies.

P. P. Graves.

CHAPTER X.

MAHAN AND THE PRESENT WAR.

A COMMENTARY FROM THE UNITED STATES.

THE passage of Mahan's centenary, on September 27 of this year, with hardly a word of commemoration, was not merely an accident due to the overshadowing influence of the present conflict, but the climax of a long process, which has been going on ever since the end of the World War.

To our fathers Alfred Thayer Mahan was a name to conjure with. The world's foremost authority on all matters of naval warfare and strategy, as well as one of the most brilliant and influential interpreters of contemporary developments, he was the writer in whose words that age found perhaps the clearest conscious expression of its aspirations, its problems, its ideologies.

To-day, less than a generation since his death, that influence has practically disappeared, and his name has become little more than a dim historical reminiscence. In the cynical atmosphere of " debunking " that became a fashion after the overheated patriotism of the war years, Mahan proved an obvious and admirable target. The economic school of historical interpretation, concentrating one-sidedly upon his role as an advocate of Sea Power and of the " White Man's Burden," as the confidential adviser of men like Theodore Roosevelt and Lodge, falsely pictured him as an honest but irresponsible " incendiary," captivated by British Society and breaking down in the last days of his life under the realisation of the disaster conjured by his teachings.

Nor has he, *au fond,* fared much better even within his own profession. Outwardly, indeed, in the two great Anglo-Saxon Navies the glory of his name has remained unchallenged ; his memory is still invoked on all solemn occasions and his teachings continue to be considered the foundation of official doctrine. But that invocation has long since become an empty ritual, and the glory, in the words of a well-known contemporary British writer on naval affairs, " is the glory of legend rather than of knowledge." In the development of present-day naval thought Mahan is no longer a living influence, and his voluminous treatises gather dust upon their shelves.* This is even more the case of the other navies, Italian,

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* It is significant for this state of affairs that even in the United States, where alone Mahan's teachings are still used in the training of officers, his original lectures have been replaced by a collection of excerpts from his published works, which, whatever its excellence, cannot replace the living contact with even a single one of his writings taken as an organic whole. During the last few years a reaction in his favour

German, and Russian, where not even pretence at paying him lip service is maintained any longer, and Mahan is either dismissed as an outdated old fossil or roundly accused of having taught naval strategy onesidedly in favour of the two Anglo-Saxon Powers.

MAHAN'S LIMITATIONS.

For all this Mahan himself is not a little to blame. Taken all in all he was nothing short of a genius—perhaps one of the greatest, certainly one of the most original thinkers America has produced. The breadth of his outlook, the soundness of his judgment, the power of his intuitive penetration to the core of the vast and complicated issues, the elucidation of which had become his life's work, were extraordinary. No one could more ably illuminate, by the lightning-flash of a single felicitous term or sentence, a whole landscape of problems. There, however, his genius unfortunately stopped. With all his intellectual profoundity Mahan was essentially an epigrammatic thinker. The individual, concrete, historical instance held all his interest. Theory to him was entirely subordinate to history; to the elucidation of concrete instances in the light of a few, a very few general considerations; or to the "ramming home" of such principles with a host of historical illustrations. The idea of abstracting these individual insights from their historical background and of integrating them into a systematic analysis of the whole complicated and paradoxical structure of naval warfare—as it was later attempted by Corbett in his "Principles of Maritime Strategy" and by Castex in his "Théories Stratégiques"—was wholly foreign to him. Even his famous lectures at the Naval War College were nothing more than a series of case-studies, strung together in a hardly perceptible general scheme; and when finally, towards the end of his life, he was induced to revise and publish them in 1911 under the title of "Naval Strategy" that task was so uncongenial to him that the result proved, in his own words, "the most perfunctory job I have ever done." So radically in fact was his mind opposed to any systematic co-ordination of his ideas that even on this occasion, when he was trying to reassemble them in what he clearly felt would probably be his "last word," he completely failed to integrate into the original body the long series of brilliant analyses and observations upon contemporary events which he had contributed, over a period of nearly two decades, to the leading periodicals on both sides of the Atlantic.*

This wholly unsystematic character of Mahan's late work renders its study peculiarly difficult. Before the student can hope to

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has led to what has been described as the "rediscovery of Mahan" in this country, noticeably so in Captain Puleston's enlightening biography, which for the first time places the study of his works upon a solid foundation, but this movement has to date not progressed far enough materially to alter the situation described above.

* The result has been that Mahan's "Naval Strategy" has not only completely failed to provide any analysis of the general framework of naval warfare, but practically omits even such cardinal individual aspects of it as for instance "blockade"; and this despite the fact that fifteen years earlier he had devoted to this particular problem an essay which still stands unique in naval theory, precisely because of its correlation of the tactical element of blockade with the general strategic problems of naval warfare. For a more detailed appreciation of the issue and of Mahan's contribution to its elucidation, see "Command of the Sea," "Brassey," 1939, p. 85.

appreciate properly either his influence upon his own contemporaries or the relevance of his teachings to our own present-day problems, he must first attempt to condense into a clear-cut synthesis the profusion of brilliant inspirations which Mahan scattered so liberally through more than twenty large volumes, and by this process must endeavour to bring to light what he himself was groping for subconsciously but, for lack of any such systematic analysis, was unable to express clearly. In his influence upon his contemporaries, certainly what he failed to make clear was at least as important as what he said. What he stressed was, indeed, wholly correct and justified: the unique nature and advantages of Sea Power; its exceptional influence upon the balance of power both in peace and war, and its consequently beneficial effects upon national prosperity and progress. But he failed to make clear, or at least touched upon only by implication, the fact that all these advantages were the accompaniment not of Sea Power as such, but of *superior* Sea Power, and that in fact the fundamental difference between war at sea and war on land was precisely the utter helplessness at sea of the inferior belligerent vis-a-vis its opponent, as illustrated in the case of France during her long maritime struggle with Britain.

Again, in the application of his teachings to our own present-day problems, it is necessary for us to concentrate precisely upon those cardinal features of naval warfare which Mahan never adequately brought out, although they are implied in all his arguments: the peculiar difficulties of war at sea with respect to defence, the significance of the " Command of the Sea " and of blockade within the system of naval strategy, and the bases of the peculiar faculty of Sea Power to intervene on *terra firma.**

INDIVISIBILITY OF THE SEA.

The obvious start of such an investigation of Mahan's doctrine of Sea Power must be the " nature " of the sea itself; its nature not as a physical phenomenon, but as a field of human and in particular of military action. Now the fundamental characteristic of the " Sea " —apart from its size and its " all embracing " distribution surrounding and separating the continents, is its " indivisibility "—the fact expressed by the old saying that " the sea is all one "; in other words that no part of it can be fenced off, fortified, and defended by itself, as a strip of land in dispute can be divided between two Powers, and that therefore its control can only go, *as a whole,* to one side or the other.

It is this impossibility of establishing a line of defence *across* the sea that constitutes the fundamental peculiarity of naval warfare, and confronts a commander at sea with problems and perplexities unknown to his colleague on land. There the normal situation

* In view of the inevitable limitations of this study, it must confine itself strictly to the sphere of naval strategy proper; to Mahan's fundamental contribution to its theoretical elucidation, to the influence of his ideas upon his contemporaries and successors and to their significance for ourselves. The no less attractive and important issue of his role not as the founder of naval theory, but as an observer and exponent of his age, must be left to another occasion.

between two opposing armies is one of more or less close contact, thanks to which the defender can frequently make a shrewd guess at the dispositions of his opponent, while the accidents of the ground, canalising any attack into certain predetermined channels, frequently enable him to concentrate his defence upon a few decisive lines and to strengthen it by the utilisation of suitable positions. Thanks to the general superiority of defence over offence in land warfare, even an outnumbered belligerent may thus—as the heroic example of the Finns has shown once again—hope to hold his own against greatly superior odds; interposing his army between his enemy and his country like a shield, in the secure knowledge that his opponent must either come to meet him with all the advantages of the ground against him, or else, if he should try to slip around his flank, would expose himself to all the dangers of a counterstroke in flank and rear.

At sea, on the other hand, all the conditions that on land tend to strengthen the defence vis-a-vis the attack are absent. No common frontier enables the defender to establish and maintain contact; no accidents of ground help to canalise his opponent's advance into predictable lines, nor to support him in making his stand. On the contrary, once on the open sea an attacker, thanks on the one hand to the mobility of ships and fleets, and on the other to the restricted range of vision and control as compared with the immense expanse even of comparatively narrow coastal waters, enjoys practically unlimited possibilities for evading the defender's forces and falling by surprise upon some part of his far-flung commitments. Incertitude as to the opponent's dispositions and movements is thus the normal and characteristic condition of naval warfare, the majority of all moves ending without any result and contact being established only at rare intervals and then often only for a few fleeting moments; while the peculiarly exposed character of the interests to be defended, scattered like shipping all over the sea or isolated like oversea possessions, instead of being concentrated behind the national frontiers, makes them particularly vulnerable to surprise attack. Thus, in an area within easy striking distance from both belligerents, naval warfare assumes more or less a character of anarchy, of chance encounters, favouring onesidedly the weaker of the two belligerents.

The only way, therefore, by which a Sea Power can hope effectively to protect itself against the dangers threatening it across the vast neutral common of the sea is through the elimination of the enemy from it altogether. This vital necessity of acquiring as quickly as possible "Command of the Sea"—either by destroying your opponent's forces through battle or, more frequently, by containing them in their ports through some form of more or less close blockade—forms the essence of Mahan's whole conception of naval strategy, running like a red thread through all of his teachings. Primarily and fundamentally it is a measure of *defence;* the expression, as Mahan formulated it on one occasion, of "the fundamental principle of all naval warfare, namely, that defence is assured only by offence"—a principle which Mahan, apart from this one occasion, did not emphasise with sufficient clearness. Only behind the fundamental screen thus established by the battle fleet against enemy intervention on the sea can home coasts and oversea territories feel safe from the threat of invasion, and movements across the sea, whether for trade or war, be reasonably secure against the danger of interception by superior enemy forces. But, owing to the "indivisibility" of the sea, such defence, in contrast to defence on land, is inextricably bound up with offence. The same "Command of the Sea," that opens up and assures the free use of the great world-wide common of the ocean to the defence, closes it to the weaker side altogether, leaving to it nothing positive to protect and defend and no other chance of retaliation than sporadic warfare against the enemy's communications by individual raiders or groups of raiders; a nuisance against which no "Command of the Sea," however complete, has ever been able to provide security and which at times has reached serious dimensions, but which so far in the whole course of naval history has in the end always broken down before the superior grip of "Command of the Sea." *

OVERSEAS ATTACKS.

Nor is this onesided superiority, conferred upon the stronger side in naval warfare by "Command of the Sea," confined merely to the naval sphere proper. On the contrary it is the most peculiar and outstanding asset of "Command of the Sea" that, in contrast to war on land, where even the most conclusive superiority, as in the case of Napoleon, is utterly unable to affect the situation on the Sea, it confers not only absolute superiority within its own sphere, but with it the power of interfering most effectively on land as well. In its immunity from counteraction and interference—an immunity to which war on land has no parallel to offer—it is free to choose its time and place at will. Assured of a safe line of retreat into which the enemy is incapable of following, the power that controls the sea can avail itself of all the ubiquity and mobility of sea power, of all the attacker's advantages of surprise and concentration to contain and distract vastly superior enemy forces with a minimum of its own. "With 30,000 men in transports in the Downs the British can immobilise 300,000 of my own" is a famous dictum of Napoleon's, frequently quoted by Mahan, to illustrate the perplexity which the ubiquitous striking force of sea power, by its mere threat alone, could impose even upon so complete a master of the continent. Incomparably greater in dimension and effect than this method of

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* This curiously one-sided character of "Command of the Sea" has in recent years tended to be obscured by the fact that the growing power of the land over adjacent waters (through coastal artillery, torpedo craft and planes) prevents the stronger Sea Power from pushing its forces as formerly right up to its opponent's coastline and permits the weaker belligerent to retain his control over his coastal waters and land-locked seas like the Baltic or the Adriatic. The impression so created of a juxtaposition of equal "command areas" based upon an equilibrium of forces and positions is, however, completely erroneous because fundamentally no such equilibrium exists; the weaker side's command over the local waters being strictly limited and purely defensive, unable to open for it a path across the sea for an attack against its opponents or any other territory and unable above all to prevent the latter from cutting it off from the ocean at large; whereas the stronger side, apart from this one local restriction upon the full use of its powers, enjoys the free use and control of "the Sea" with all its traditional defensive and offensive advantages.

Bombardment of Cherbourg on October 9, 1940.

(British Official photograph.)

"distractionary" raids against the enemy's coastlines—which reached its apogee under the elder Pitt in the Seven Years' War—have been the great maritime campaigns in which sea powers, exploiting the superiority of sea over land communications, have been able to exhaust their opponent's vastly superior resources by forcing upon them campaigns in distant theatres of war, as Great Britain did to France in the Iberian Peninsula, and to Russia in the Crimea, and as Japan did to Russia in Manchuria.

Even more remarkable than this capacity of sea power to impose wholly disproportionate efforts upon its opponents by virtue of its superior mobility has been its power to interfere, directly and decisively, in struggles on land wherever they could be brought under the influence of naval gunnery. The role in the fall of Quebec of the small British squadron pushed under Saunders far up the waters of the St. Lawrence; that of De Grasse in the capitulation of Yorktown; the effect of Nelson's guns on the French advance in the Riviera in 1794, and that of his successors on the coast of Flanders 120 years later; the decisive influence in the war of 1812 of the control of the Inland Lakes by the diminutive squadrons of Perry and Macdonough, are outstanding examples of many different ways in which sea power has intervened in land operations, and of the far-reaching effects it has been able to exercise upon them. It was by these examples, in fact, that Mahan was able to demonstrate his great thesis so convincingly and it was to them that he lovingly returned again and again.

On the largest scale control of the all-penetrating and all-dividing medium of the sea enabled sea power to intervene decisively in the great struggle of the seventeenth and eighteenth centuries for the mastery of the overseas world. By cutting its opponents' communications with their possessions beyond the sea and by overwhelming the latter in detail when thus isolated and weakened, British Sea Power was able to overcome in succession its Spanish, Dutch, and French rivals. Not until it came up, in the American War of Independence, against an opponent, the roots of whose own strength lay overseas beyond its reach, was this practically uninterrupted career of victory stopped.

Thus in the combination of all these factors together, in immunity of territories and protection of trade, economic stranglehold, freedom of strategic planning, and movement across the sea and power to distract and to interfere with the enemy's action on land, resides the peculiar strength of sea power. Hence, the peculiar and unique weight which true sea power can cast into the balance of power; sea power not merely as the sum total of a country's assets at sea—navy, mercantile marine, bases, oversea colonies—but in the deeper sense, in which the word was originally coined by no less a one than Thucydides: *τό τῆς θαλάσσης κράτος*, the "Power of the Sea," the power which the sea confers upon him who knows how to conquer and to use it.

So great has this power proved itself again and again in the course of history, so hopeless have been the chances of weaker powers to evade or counteract its impact, that it has tended to throw its mighty shadow over the Continents even in time of peace. The noiselessness and speed with which fleets can be mobilised, the ease with which they can be swung around from one destination to the other and their secret kept to the last moment—as Cromwell, without warning, turned against Spain the Fleet sent out, under Blake, ostensibly against France—the far-reaching effects which their mere threat has had on the affairs of the Continent, often dissolving hostile coalitions ere they had yet properly been formed, all these have combined to make sea power the instrument *par excellence* of diplomatic action and pressure. Thanks to it, Great Britain has been able for centuries to throw into the balance of European Powers a weight far beyond her resources in man-power and wealth, and to secure for herself the lion's share in the division of territories "oversea."

MAHAN'S OVER-GENERALISATION.

If Mahan had been satisfied with stopping here, his case would have been unassailable. Unfortunately, however, his enthusiasm for his subject, unchecked by any systematic analysis of its nature and implications, outran his critical sense and led him to jump precipitately from the demonstration of the remarkable influence of sea power upon individual concrete military and political situations, to sweeping general claims so broad and so vague as to be wholly unsubstantial and unwarranted. From an instrument in the hands of Governments, "Sea Power" under his hands became almost a force in its own right, a complete political and economic system, embracing and dominating the entire life of the State. Undoubtedly there was a grain of truth even in this conception, in particular for those periods and issues which formed the basis of all of Mahan's investigations and arguments, the late seventeenth and eighteenth centuries with their concentration upon mercantilist rivalry for the control of the overseas world. Undoubtedly his success owed much to the inspiration derived from this broader approach. But, just as certainly, it led him into gross exaggerations and downright fundamental misconceptions which, in the hands of less scrupulous disciples, were to create not merely confusion but serious error, and to end in bringing the whole of his ideas into undeserved disrepute.

Because of his acute appreciation of the vital role played by the sea in the economy of the world, as "the royal highway of nature's own making," "nature's great medium of communication," Mahan fell into the fatal error of appearing to make its peaceful utilisation dependent upon its military control, and of paralleling "control of the sea by maritime commerce" with "control of the sea by naval supremacy." The result was that he obscured not only that, in his own age at least, the peaceful use of the sea was no longer dependent upon military power but stood open on equal terms to all bordering upon it (even to such small nations as Greece and Norway, whose huge mercantile marines lacked the support of any appreciable naval strength) but also that as we have seen above, "Control or Command of the Sea"—consisting not in any physically impossible substantial occupation of "the Sea," its "reduction into possession" by any one power or group of powers, but in the temporary exclusion by a belligerent of his opponent from its use—does not and cannot exist except as an act of war.

Nor, unfortunately, did his error stop there. By the same vague general conception of sea power as the shield for all " oversea activities " of a nation, which led him unduly to stress the dependence of a mercantile marine upon a correspondingly powerful battle fleet,* Mahan was induced to make the conquest and retention of oversea markets dependent not so much upon the economic ability of the individual merchant as upon the power of his state to open and retain his markets for him by force. In this insistence upon the dark fundamental of force ultimately underlying all human affairs, and not least international economic relations, Mahan, as we to-day are perhaps better able to realise than were his earlier critics, was not so far from the truth. In the age of mercantilism from which he drew his inspiration, this state of affairs had indeed existed, and although mercantilism had since had to give way to the organisation of the world upon a predominantly free trade basis, his own age was unmistakably moving again towards a re-emphasis on the power element in international economic competition. His fault, or perhaps his misfortune, lay rather in the fact that by his authority he confirmed his contemporaries' belief in the inevitableness of such a development at a time when, as the British elections of 1906 were to prove, the force of the Free Trade movement had not yet been spent and, as we can see to-day, when economic rivalries, however influential, played a much smaller role in determining the action of statesmen and nations than most contemporary observers were inclined to believe.

This tendency of Mahan to interpret the complex situation at the turn of the century in the far simpler and in many respects misleading terms of mercantilist rivalry was all the more unfortunate in view of its influence upon that particular issue which, during that period, began more and more to dominate the international scene, and contributed so decisively to bring about the final catastrophe in 1914—the rise of the German Navy and her consequent naval rivalry with Britain.

The profound influence of Mahan upon the development of German naval policy did not arise from his being more deeply studied or better understood in Germany than elsewhere. Both his adherents and his critics have vied with each other in creating a wildly exaggerated picture of his influence upon German public opinion, the German Navy, and above all the Kaiser himself, who indeed, in the words of his famous telegram to Poultney Bigelow, " devoured " Mahan with avidity, but completely failed to understand him. His influence is attributable rather to the fact that the peculiarity of Germany's position within the circle of the major Sea Powers made her, or rather made the leading spirit of German naval policy, Tirpitz, particularly susceptible to the fallacies in Mahan's arguments.

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* In his " Naval Strategy " Mahan, under the impression of the remarkable development of the Russian Navy, despite the almost complete lack of a merchant fleet to back it, expressly renounced his original doctrine that a Navy was inconceivable without the basis of a powerful shipping industry; but he never seems to have envisaged the opposite proposition that a flourishing shipping industry was conceivable without the constant support of a Navy.

TIRPITZ'S LACK OF INSIGHT.

It is one of the most peculiar aspects of the wave of naval re-armament which swept over all the great powers in that age, so onesidedly characterised as the "Age of Imperialism," that despite constant association with the general scramble for oversea markets and colonies, in practice the various navies were determined far more by immediate and concrete necessities of power politics than by considerations of economic competition in peace. This was true not only of the British, the Japanese, and the Italian Navies, but to a hardly lesser degree of those other navies which, like the French, the Russian, and even the United States Fleets, were not absolutely indispensable to the maintenance of national independence. It was the peculiar and unique position of the German Navy that its rise alone was the result primarily not of the clear and indispensable exigencies of national self-assertion, but of far less cogent and incomparably more disputable considerations of imperialist economic rivalry. From the point of view of her position within the European balance of power, a navy strong enough to enable her to hold her own against the Franco-Russian combination threatening her from both sides would have been amply sufficient. But to Tirpitz this natural consideration became completely overshadowed by the almost panicky fear that the rising Anglo-German economic rivalry would increasingly dominate the relations between the two nations and lead the British to crush German competition by brute force unless he could succeed at the last minute in building up a fleet sufficient to deter them from that course.

This aim, however, immediately led him into a fatal dilemma that was to vitiate from the outset the whole of his policy. All other second-rank navies were at that time primarily concerned with opponents of equal or even inferior strength, over whom they could hope to achieve local superiority and "command": the Japanese with the Chinese and the Russians, the Russians with the Japanese, the United States with the Spaniards and the Germans. The German Navy alone was from the outset deliberately and exclusively pitted against the overwhelming superiority of the leading sea power, and devoted to the strategically hopeless task of "defending" German oversea communications and interests against it; a situation made all the more hopeless in view of the exceptionally favourable strategic position of Great Britain athwart all Germany's lines of communication to the open ocean, a position which made Germany's dependence upon her good will so particularly acute and galling.* As Mahan expressed it in one of his most brilliant flashes: "The dilemma of Great Britain is that she cannot help commanding the approaches to Germany by the mere possession of the very means essential to her own existence as a state of the first order"—and, we may add, to her national independence.

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* Other great Powers like Russia shared that disadvantage with Germany, but Russia's sea communications were not as vitally important as were Germany's. The United States, on the other hand, though at this time an even greater competitor with Great Britain in the economic sphere, was by the advantage of its geographical position far removed from the area of British naval preponderance.

Whether Tirpitz ever completely realised this interlocking of German and British life interests must remain doubtful. But he certainly grasped another vital point in that issue, the fact that Germany's position, so near to the nerve centre of the Empire, with the leading Army of the world behind the Navy, gave her in her turn a power of pressure upon Britain, which judiciously exploited might help him to prevent the war politically which he could not hope to win militarily. By making the German Fleet so strong as to force the British to concentrate virtually all their naval forces in Home Waters in order to maintain the superiority indispensable to guarantee the safety of the Motherland, Tirpitz hoped to paralyse the British freedom of action to such an extent that they would be forced in the long run to capitulate before that threat, to renounce the two-to-one superiority they had hitherto claimed as the indispensable margin of safety over the navies within striking distance,* and to accept German naval parity or practical parity. The misunderstanding of the British temperament and character in this overshrewd speculation was no more disastrous than this complete disregard of the fatally inferior position in which the German Fleet would find itself, if the British should fail to submit and should prefer to call his bluff.

The peculiar fallacy underlying that policy lay thus in the fact that, in order to ward off a danger which, if not wholly imaginary, was grotesquely exaggerated and, as we can see to-day, would in all probability never have materialised, it set out to create a challenge which, in the light of the realities of the strategic situation, it could not possibly hope to make good in earnest.† When, therefore, in August, 1914, the British declaration of war brought down Tirpitz's whole policy like a house of cards, the powerful Fleet which he had been building up for nearly two decades with such amazing organisational skill found itself hopelessly bottled up in the North Sea, unable seriously to affect the stranglehold of the British "Command of Sea" exercised by the Grand Fleet from the safe distance of Scapa Flow. Built and trained for battle within a radius of fifty miles around Heligoland, the German Fleet awoke too late to the fact that if the British did not choose to come and meet it there it was powerless, with its inferior numbers and inadequate cruising range, to seek them out and challenge their hold over the decisive area between

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* The danger of the German Navy to Great Britain rested as much upon its propinquity to the British nerve-centre as on its actual numbers. That is why the simultaneous rise of the American and Japanese Fleets, although leaving the British by no means indifferent, affected their naval position so much less directly that they could disregard them for the time being and, in the post-war era, could concede to America the one-to-one standard, which could never have been conceded to Germany without placing Great Britain completely at the mercy of that Power.

† It is impossible within the compass of this study to discuss the complicated issue of the evolution of Tirpitz's strategic ideas and to determine how far they may have been affected by Mahan's failure to bring out clearly the "onesidedness" of naval warfare and the hopeless position of inferior Sea Powers. A few indications of the problems involved can be found in the first chapter of my preliminary study "German Theories of Sea Warfare," "Brassey," 1940, p. 88.

Certainly the outlook of the German naval officers corps was fatally obscured (as Admiral Wegener, Tirpitz's outstanding post-war critic, pointed out in his "Seestrategie des Weltkrieges," pp. 75–78) by their failure to grasp the implications of the fundamental difference between war on land and war at sea and their tendency to visualise the German Navy's position in terms of the familiar concepts of land warfare.

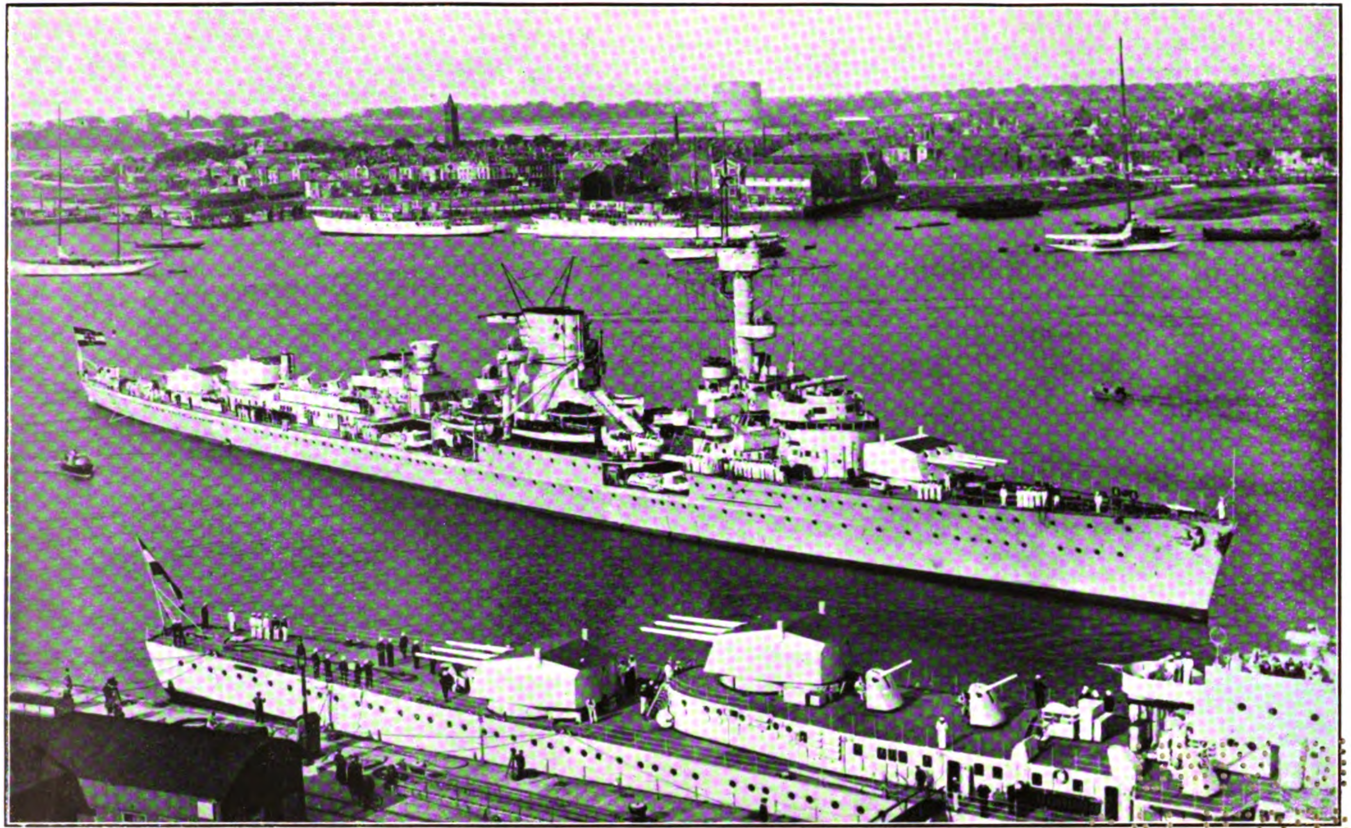
Scotland and Norway. Unable to maintain and protect the vital German lanes of communications to the open Atlantic, the German Fleet found itself thrown back on the desperate expedient of trying to lure parts of the British Forces into a trap by strategically pointless tip-and-run raids against the British East Coast.

POST-WAR ERRONEOUS CONCLUSIONS.

The unexpected result of this complete collapse of Germany's pre-war naval policy, and of the fundamentally helpless position into which it had brought the German Fleet—a position which its leaders throughout the war endeavoured in vain to understand and grapple with—has been a complete and almost universal confusion of ideas on the naval side of the war. Impressed by the sight of the powerful German Fleet, the building of which had caused so much excitement the world over, lying for the most part useless in its home ports, coming out only for furtive raids into the North Sea and unable to break the stranglehold of the British blockade that was slowly choking Germany to death, and yet on the other hand seeing the equal inability of the Grand Fleet to protect the British East Coast from bombardment; seeing, moreover, how completely the one great battle between the two Fleets failed to influence the general situation, public opinion—and unfortunately many naval experts as well—jumped to the wholly erroneous conclusion that the battle fleets had proved almost useless in the struggle.

In that conviction they were confirmed by the wholly unexpected and spectacular success of the submarine; overlooking the fact that even if the Grand Fleet had been unable to carry its " command " right up to the enemy's coastline as formerly, and had been obliged to leave the southern part of the North Sea more or less to its German opponent, its control over the oceans had been as firm as ever before, and that it was this " command of the surface," exercised by it, which had enabled the Allies to find the measure and ultimately completely to defeat the submarine menace.

If Mahan himself had lived through the war his powers of interpretation and his unrivalled authority would probably have enabled him to meet and stamp out such confusion, and to point out beneath the deceptive change in superficial appearances the substantial reaffirmation of the fundamental features of war at sea; but he had been called away in the very first days of that great struggle—and the years after the war were anything but favourable to his memory and his ideas. Under the influence of that great carnage the spirit of the age veered sharply from imperialist adventure to the dream of a new peaceful world order, from international anarchy to the League, from military rivalry to disarmament. And it was in the naval sphere that these new tendencies found their one signal success. Unfortunately, however, the attempt to resolve differences and rivalries not on the ocean, but around the council table, however great the momentary blessings which it conferred upon humanity, was not conducive to clear strategic reasoning. In the curious atmosphere of unreality that surrounded this period from the beginning to the end,



German cruiser Leipzig going alongside de Karlsruhe.

(*Associated Press photograph.*)

political and strategic realities were thrust into the background by purely abstract considerations and utterly improbable hypothetical conjectures. To this general atmosphere, already sufficiently disconcerting to naval experts, was added the uncertainty as to the effect which the new weapons developed during the war, the submarine, the mine and above all air power, would have upon the future development of naval warfare. Small wonder that the period between 1920 and 1930 showed a decline of strategic thought such as the naval world had not known since the advent of Mahan.

When, from about 1930 onwards, naval ideas began to consolidate themselves again, the unity of doctrine, which under the influence of Mahan's writings had characterised the naval world to such an amazing degree before the World War, had given place to a split into two sharply opposed camps. On the one hand, the three major sea powers, Britain, the United States, and to a lesser degree Japan, each in its own way carried on the ideas expressed by Mahan, with the modifications necessary to adapt them to the changed technical conditions. Battle lines had become smaller, tactics more elastic, air power had changed the whole problem of reconnaissance; but the fundamental conception of basing naval strategy on the "Command of the Sea," if possible, by the destruction of the enemy's main forces in battle, remained unshaken. A particularly detailed and carefully reasoned expression of that outlook was given in France by Admiral Castex, who presented the five volumes of his great re-assessment of naval warfare, "Théories Stratégiques," as an emphatic reaffirmation of the foundations laid by Mahan.

NEW THEORIES OF SEA WARFARE.

Against this group there arose, however, in the "minor" sea powers, in Italy, Germany, Russia, and to some extent in France, a new school of naval writers, who, rejecting Mahan's doctrine of the "Command of the Sea" as onesided and outdated, sought to oppose to it their own new and revolutionary concept of naval warfare.

The emotional impulses which animated this revolt against the conception of naval warfare as a struggle for the "Command" were many and varied: in Russia the desire to emulate in naval warfare the revolutionary methods evolved on land during the Civil War; in Italy the traditional tendency to rely upon superior ability and manœuvre to offset the deficiency in actual fighting strength, strongly reinforced by Fascism's cult of will-power, audacity, and astuteness; in Germany, finally, the grief over the defeat and the necessity of establishing a new basis for the reconstruction of the German Navy. In one point, however, all agreed: in the profound impression of the helplessness of the German Navy during the World War vis-a-vis its superior opponent and in the conviction, drawn from this example, that in such a case for the inferior sea power to struggle for "Command," which obviously was beyond its reach, meant merely to play into its opponents' hands instead of concentrating all efforts upon the point where they might achieve, if not victory, at least the maximum destruction, upon the attack of the enemy's lines of communication.

Unfortunately, however, in the atmosphere of wishful thinking and of resentment against the superior sea powers, resentment which had called into being this whole " revolt of the Have-nots against the Haves in naval strategy," this simple and perfectly correct conclusion, to which Mahan himself could have subscribed, was enlarged to and confused with the wholly different and totally inadmissible claim, that under the impact of the new weapons, in particular of air power, the " Command of the Sea " could or would no longer be sought at all and that naval warfare would resolve itself into a mutual " attack and defence of trade " by means of convoy and cruiser warfare. These extreme consequences of this new doctrine of naval warfare were, however, so rarely expressed and were enshrouded by such a veil of more or less subtile ambiguities and misunderstandings, while the strong element of truth at the bottom of it appealed so strongly to the peculiar situation of such minor sea powers as Germany and Italy, that the whole, with all its inconsistencies, was swallowed by them, hook, line, and sinker, without so much as the slightest note of dissent.

THE PRESENT WAR.

It is this struggle, no longer between two sea powers for the same objective, " Command of the Sea," but between two diametrically opposed systems of naval strategy, that constitutes the outstanding feature, and the peculiar interest, of the present conflict. While the British have once again relied upon their traditional strategy of the " Command " their German and Italian opponents have persistently refused to play into their hands and to let themselves be drawn into any " ranged combat " in which they know they must succumb ; concentrating instead all their forces upon the one task of striking at Britain's weak spot, her thinly-guarded lines of communication behind the shield of her battle fleets. In this they have been greatly favoured : first, by the great reduction in British forces compared with the World War ; secondly, by the new weapons and methods of attack developed since that time ; and thirdly, by the weakening of Britain's favourable geographic position as a result of the German aggressions and victories in the first half of 1940. In the Mediterranean, Britain's hold over her Italian opponent is indeed singularly facilitated by her control of the only two outlets, Suez and Gibraltar. In the north, however, the original favourable position has been profoundly altered to her disadvantage by the German conquest of the whole Atlantic seaboard from the North Cape to Bayonne ; the tremendous extension of the area to be patrolled far outweighing the improvement of the British bases by the occupation of Iceland and the Faroe Islands.

The maintenance of the British " Command " in the teeth of all these obstacles is the dominant fact of the present conflict ; an achievement so overwhelming that it is difficult to realise its magnitude and implications. The technical dispositions and devices by which it has been carried through, the methods by which the British

Naval Command is protecting its lines of auxiliary cruisers between Iceland and Scotland from being rolled up by superior German forces, or by which the blockade has been extended over the coasts of France and Spain, are necessarily shrouded in mystery ; but the utmost daring and ingenuity in the co-ordination of old and new weapons and methods must have been required for their successful achievement.

A few dominant facts, however, stand out fairly clearly even at this stage. The fundamental role of the battleship in the establishment and exercise of " Command " has once again been reaffirmed against all its detractors. Even less than during the World War have naval battles been necessary to establish that " command " of the British battle squadrons over their opponents, but without their constant support and protection, the whole complicated system of British Sea Power would collapse overnight like a house of cards.

LIMITATIONS OF AIR POWER.

The corollary of the persistence of the battleship has been the failure of the aircraft to drive it from the surface of the sea. So far at any rate the impact of the new aerial factor on naval warfare has succeeded in modifying certain aspects to a remarkable extent, but has utterly failed to shake its foundations. Over coastal waters aircraft operating at short range from land bases have shown themselves a most powerful and at times decisive factor. On the other hand, their successes against light vessels have been limited and against capital ships almost negligible ; consideration must, however, be given to the fact that the accuracy of bombing ships seems to have increased markedly in the course of the war.

In contrast, the aircraft has shown itself a most useful instrument in penetrating to those regions closed, or practically closed, even to the ubiquitous submarine, as in the large scale British mining operations in the Baltic ; and in particular has shown itself a successful commerce raider, either alone, or in conjunction with submarine and surface vessels.

On the other hand, in the field of reconnaissance the aircraft does not seem to have come up to the high expectations held before the war by naval opinion, at least if we are to judge from the apparently undiminished role which ignorance of the enemies' movements and chance encounters seem to have played throughout the war—in particular during the Norwegian campaign. In this respect, therefore, the fundamentals of naval strategy, as developed by Mahan, do not appear to have been decisively affected, although aerial reconnaissance has undoubtedly played a great role in detail and greatly facilitated such delicate tasks as the rushing through of supplies from Italy to Libya.

What has the " Command " meant to Great Britain ? There can be no doubt that at the head of this discussion we shall have to place the fundamental asset conferred by sea power, " immunity against invasion." That immunity may be qualified by the new possibilities of invasion through the air ; it may be dependent upon the effective collaboration of a not too pronouncedly inferior air force; it may finally no longer be sufficiently assured to dispense with the need of a strong home force as a second line of defence; but one need only imagine the breakdown of that power for less than twenty-four hours in the Channel to realise what her " Command " has meant to Britain in this respect during the last terrible half year.

SEA COMMUNICATIONS MAINTAINED.

The second great advantage of the " Command " has been the maintenance of the British lines of communication. Thanks to the prompt imposition of the convoy system at the outbreak of the war and the high efficiency of British anti-submarine methods, tonnage losses during the first phase of the war were kept at a remarkably low level; low even considering the considerably greater pressure on British tonnage compared with World War experience. With the extension of the German bases, however, from the Heligoland Bight to the Channel and the Atlantic ports of France, and of air attacks upon commerce to the areas west of the British Isles, shipping losses during the last few months have risen to such an extent as to become a serious menace, unless new measures to cope with them can be found.

In contrast to these marked successes of submarines and aircraft, the plans so triumphantly proclaimed by German naval writers just before the war for a wholesale destruction by Germany's three pocket battleships of British transatlantic convoys, forced together by the submarine menace, have definitely fallen short of both anticipations and fears. The cruise of the Graf Spee was completely barren in this respect and hardly more successful in any other; while the one case in which recently another pocket battleship actually succeeded in locating a British convoy in mid-Atlantic has been conspicuous chiefly by the limited damage inflicted even in the most favourable circumstances. Certainly, the distractive effect of these raids upon the British system of naval defence as a whole appears to have been far less, in actual practice, than was commonly expected before the war.

Far more successful than the pocket battleships, apparently, have been the armed merchantmen sent out by Germany to act as commerce destroyers, some of which appear to have made the Atlantic unsafe over considerable periods, while one at least has penetrated as far as the waters surrounding Australia and New Zealand. On the other hand, the use of the new bases on the Channel and Atlantic coasts for surface raids has fallen far short of what had been feared at one time, being restricted to cross-Channel raids by small torpedo boats (E boats) against British convoys at the mouth of the Thames, while large scale attacks by destroyer flotillas appear, with one exception, to have been noticeably absent.

On the offensive side the British blockade has had to cope with a host of difficulties and obstacles unknown during the last war. During that conflict Germany had found herself in a particularly disadvantageous position for resisting the interruption of her sea-

H.M.S. Sunfish returning from successful patrol in enemy waters.

(*Central Press photograph.*)

borne supplies by British Sea Power, being practically surrounded by an iron ring of hostile countries, and, moreover, seriously handicapped throughout by her total lack of even the most elementary precautionary provisions. This time, on the contrary, Germany's resources for more than six years have been systematically organised for just such an emergency, while every channel and loophole by which the blockade could be evaded has been explored—and exploited—with the utmost ingenuity. Moreover, by her lightning-like conquest of Poland she has succeeded in securing from the outset free access to the resources of Russia, as well as a by no means unimportant back door to the world through Vladivostock, while her conquests in the north and west have enabled her to overcome most of the deficiencies in her access to military raw materials.

On the other hand, however, all Germany's conquests have not availed to improve her food situation, but on the contrary have burdened her with a series of subject peoples, normally dependent upon supplies from oversea and further impoverished by the general disruption of agriculture through the war. Even if the British blockade has not been able to bring Germany to an impasse in the field of military requirements, this hold upon the German food situation is a factor of great and in the long run perhaps even decisive importance, which amply justifies the remarkable efforts made to maintain it.

The picture is far more confused with respect to the possibilities opened up by the British "Command" for direct military intervention on the Continent. In general there can be no doubt that the improvements in long-range gunnery and torpedo-craft of all kinds together with aviation have tended to strengthen the power of coastal defence against attack by naval forces. In the words of Admiral Castex, the land has to some extent expanded its force out into the sea, at least its coastal waters. Above all, the supreme mobility of air power has tended to offset the superiority of fleets over land forces upon which, in the old days, so much of the distractive effect of sea power depended. As a result mere diversionary raids have almost disappeared, while landings on a hostile coast have become more and more difficult, as shown particularly in the case of Norway where even the co-operation of the population could not offset the advantage gained by the Germans in the first moment of surprise by the occupation of the key ports, coastal fortresses and, above all, aerodromes. The manner in which on this occasion the German High Command was able, thanks to its local superiority in the air, to make the small enclosed area of the Skagerrak untenable for Allied surface craft and to rush its forces across despite heavy losses by mines and submarines, was a most striking example of the extent which this extension of land over the sea may be able to achieve. On the other hand, both the evacuation of Dunkirk and the subsequent naval encounters in the Channel have shown that this is by no means the rule, and that normally with no more than equality of support from the air, naval superiority is still fully able to take care of and to assert itself.

NEW LIMITATIONS ON SEA POWER.

The failure of British Sea Power to prevent the Germans from reinforcing themselves across the Skagerrak is, however, a striking example of the difficulties of sea power in achieving under present-day conditions that isolation of its objective upon which depended the success of the great maritime campaigns of the past, in the Peninsula, in the Crimea, and even more lately in the Japanese struggle against Russia in Korea and South Manchuria. That condition, unfortunately, exists to an incomparably lesser degree in the case of the new field of intervention on the Continent opened up to Britain by the Italian aggression on Greece. British "Command" of the Mediterranean, preventing the Italians from overwhelming Greek resistance from the sea, and forcing them instead to take the difficult road through the Epirus Mountains, has indeed so far been the cornerstone of the whole Greek defence. Once let the huge German war machine come rumbling down the Vardar Valley, however, and British Sea Power in the absence of a correspondingly large land force could not hope to prevent the continental parts of Greece from being overrun.

Here, in truth, we touch upon the heart of the present struggle. Hitherto the marked superiority of sea power over land power, which formed Mahan's great thesis, has rested, as we have seen, upon the combination of two main factors: its immunity against attack and its power of intervention on the Continent, thanks to its superior mobility. The former, resting upon the very nature of naval warfare, has remained unchanged, however modified and qualified in recent years; the latter, resting upon the weakness of its opponent, has been profoundly affected by the incomparably more efficient organisation of land power in the course of the last hundred years. In comparison to sea power, whose characteristics have remained on the whole essentially unchanged by the advent of steam and oil, the mobility of land power has immensely increased by its successive adoption of the railroad, of automotive transport, and of the aircraft. That has not only had the most profound effects upon the immediate problem of coast defence—where even in the days of Moltke, the General Staffs felt capable of dealing with any landing, given a fairly effective railway net—but above all in the wider field of what one may call the "organisation of the continents." Thanks to these wholly new means of covering space, there has arisen for the first time in history the technical possibility of organising and effectively controlling even the greatest land blocks, like the huge Eurasian plain from Hamburg to Vladivostock, while the striking force, speed, and range of modern mechanised armies and air armadas has in the last few years increased beyond anything ever imagined even in the wildest dreams. Thus the day may appear to have come when land power, having overcome its age-old lack of efficient organisation, can hope to turn the tables upon its opponent and, by the organisation of the whole firm land into a closely knit system, not only deny to it the indispensable weak points in which to insert its lever, but to hurl it back into the sea, wherever it may have gained a foothold on the continent.

This menace is all the more significant in view of the simultaneous change in the character of the British Empire and its immensely increased vulnerability to overland attack. In the seventeenth and eighteenth centuries, when the outlying British possessions in the East were relatively small footholds, threatened mainly by other European sea powers, but fully able to hold their own against the militarily ineffective despots surrounding them, the establishment of British " Command " in Home Waters could simultaneously protect both Motherland and colonies with a minimum of effort. Ever since the days of Napoleon, however, the threat of an overland attack against India, which all the might of British Sea Power would be powerless to stop, has hung like a nightmare over the Empire and has increasingly burdened and distracted its defensive effort, as on the one hand these outlying settlements pushed inland from their original coastal bases, and on the other mighty land powers, like Russia and Germany, drove their railroads across the Old World toward them. To-day when the driving power of the new super war-machines has reached such unprecedented dimensions as to make the smashing of the intervening obstacles no longer impossible, Adolf Hitler may well think of taking up again in earnest the dream that led Napoleon to the banks of the Nile and did not leave him until his course had been run. Unless all signs fail, the present conflict seems well on its way to develop into that titanic struggle between land power and sea power for the control of the Old World, which Mahan foresaw at the turn of the century in his " Problem of Asia."

MAHAN'S WORK VINDICATED.

Thus, from whatever point we consider the present great conflict, we are led back to the foundations laid with such brilliant foresight by Mahan half a century ago. Though many details have been invalidated or modified by developments he could not foresee, the core of his work, the analysis of the fundamental problems of naval strategy, which he was the first rationally to perceive and explore, has stood the test of time and adverse criticism, and has emerged triumphant. To reap the full benefit of his heritage, however, to separate the eternal from the transitory, and the essential from the accidental, will demand an intellectual effort of the very first magnitude. It is in the call to that effort that the true significance of Mahan's centenary is to be found.

HERBERT ROSINSKI.

REFERENCE SECTION

Comprising

DIMENSIONS AND PARTICULARS OF BRITISH AND FOREIGN WARSHIPS

BRITISH AND FOREIGN AIRCRAFT TYPES

BRITISH AND FOREIGN ORDNANCE TABLES

MISCELLANEOUS

DIMENSIONS AND PARTICULARS OF BRITISH AND FOREIGN WARSHIPS

LIST OF BRITISH AND FOREIGN SHIPS.

Warships are arranged in classes, except in some instances where they are arranged alphabetically. The following abbreviations are used throughout the List:—

a.g.b.	Armoured gunboat.
g.b.	Gunboat.
b.	Battleship.
b.c.	Battle cruiser.
l.cr.	Light cruiser.
c.d.s.	Coast-defence ship.
M.Cr.	Minelaying cruiser.
cr.	Cruiser.
A.A. or H.A.	Anti-aircraft guns.
A.C.	Aircraft carrier.
A.T.	Aircraft tender.
S.C.	Seaplane carrier.
H.N.S.	Harvey nickel steel.
H.S.	Harveyised or similar hard-faced steel.
K.S.	Krupp steel.
t.	Speed and H.P. at trials (in speed and H.P. columns).
b.p. or p.p.	Length of ship between perpendiculars.
L.	Light guns under 15 cwt., including boats' guns.
M.	Machine guns.

Torpedo Tubes: (D.) = double; (T.) = triple; (Q.) = quadruple; (sub.) = submerged; a.w. = above water.

The following abbreviations are used to distinguish the various types of boilers:—

W.T.	Water-tube boilers, where the type is not known.
B.	Belleville.
Bl.	Blechynden.
B. & W.	Babcock and Wilcox.
D'A.	D'Allest.
My.	Miyabara.
Nic.	Niclausse.
Pen.	Penhoet.
T.	Thornycroft.
T.S.	Thornycroft-Schulz.
W.F.	White-Forster.
Y.	Yarrow.

The following abbreviations distinguish types of machinery:—

P.T.	Parsons turbines.
C.T.	Curtis turbines.
B.C.T.	Brown-Curtis turbines.
(G.)	Geared turbines.
D.	Diesel.
tur.	Turbines, where the type is not known.
recip.	Reciprocating engines.
I.C.	Internal combustion engines.
W.G.T.	Westinghouse geared turbines.

In later pages (marked P1, P2, etc., towards the end of the volume) plans of most of the ships appear.

Unless otherwise stated, the displacements are Standard displacements (*i.e.* excluding fuel and reserve feed water).

GREAT BRITAIN.—Battleships and Battle Cruisers.

Class	NAME.	Standard Displacement.	Length. (Extreme.)	Beam (Extreme.)	Normal Draught.	Horse-Power. Type of Boilers.	Where Built.	Makers of Engines. Type of Machinery.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Complement (War).
												Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position. Heavy Guns.	Gun Position. Second-ary.	Guns.	Torpedo Tubes.		
		tons.	ft.	ft. ins.	ft. ins.						£	in.	in.	in.	in.	in.	in.			knots	
b. b.	1 Battleship 1 Battleship						J. Brown Fairfield	J. Brown Fairfield	Bdg.									16-*in.* guns.			
b.	**Lion** . .	40,000					Vickers (Walker)	Vickers (Walker)	Bdg.												
b.	**Temeraire** .						Cammell Laird	Cammell Laird	Bdg.												
b.	**King George V.**	35,000					Vickers (Walker)	Vickers (Barrow) (G.)	1939	1941								10 *14-in.*, 16 *5·25-in.*; aircraft and catapult.			
b.	**Prince of Wales**						Cammell Laird	Cammell Laird(G.)	1939												
b.	**Duke of York**						J. Brown	J. Brown (G.)	1939												
b.	**Beatty** . .						Fairfield	Fairfield (G.)	Bdg.												
b.	**Jellicoe** . .						Swan Hunter	Wallsend (G.)	Bdg.												
b.	**Nelson** . .	33,950	710	106 0	30 0	45,000	N'wc'stle-on-Tyne	Wallsend B.C.T.(G.)	1925	1927	6,410,071	14	6¼	..	..	16–9	..	9 *16-in.*, 12 *6-in.*, 6 *4·7-in.* A.A.; 4 *3-pr.*, 3 *2-pr.* mult. p.p.; 5 M.; 11 L.; 2 *2-pr.* Pom Poms in Nelson.	2 (sub.) 24″	23	1360
b.	**Rodney** . .	33,900		106 1			Birkenh'd	Cammell Laird B.C.T.(G.)	1925	1927	6,148,319										1315
b.	**Ramillies** .	29,150	620½	‡102 0	29 0	40,000 Y.	Dalmuir .	Beardmore, P.T.	1916	1917	3,295,810	13–4	4–1	6	6–4	11	6	8 *15-in.*, 12 *6-in.*, 4 *3-pr.*, 2 *2-pr.* Pom Poms; 8 *4-in.* A.A.; 5 M.; 11 L. Resolution has a catapult on X turret and carries 1 aircraft. Revenge and Ramillies have 4 *4-in.* A.A.	2 (sub.) 21″	23‖	1010
b.	**Resolution** .		620¾	‡101 4			Jarrow .	Palmer . P.T.	1915	1916	2,449,680										1012 1104
b.	**Revenge** .		625¾	‡101 5			Barrow .	Vickers . P.T.	1915	1916	2,406,368										
b	**Royal Sovereign**		620¾	‡101 6			Portsm'th	Parsons . P.T.	1915	1916	2,570,504										1104

b.	**Malaya¶** .	31,100	640¾	104 0	31 3	75,000 B. & W.	Walker .	Wallsend . P.T.	1915	1916	2,945,709	13–6	3-1	6	4–2	11	6	8 *15-in.*, 12 *6-in.*, 8 *4-in.* A.A., 4 *3-pr.*, 2 *2 pr.*; 5 M.; 11 L.; 1 catapult, 1 aircraft.		25‖	1136
b.	**Valiant** .	31,100	639¾	104 ‡ 0	31 3	75,000 B. & W.	Govan .	Fairfield . B.C.T.	1914	1916	2,537,087	13–6	3–1	6	4–2	11	6	8 *15-in.*, 12 *6-in.*, 4 *3-pr.*, 4 *4-in.* A.A.; 2 *2-pr* Pou Poms; 5 M.; 11 L.; 1 catapult, 1 aircraft.		25‖	1136
b.	**Queen Elizabeth**	31,100	644¾	‡104 0	31 3	75,000 B. & W.	Portsm'th	Wallsend . P.T.	1913	1915	2,473,103	13–4	3–1	6	4–2	11	6	8 *15-in.*, 12 *6-in.*, 4 *3-pr.*, 2 *2-pr.* Pom Poms, 8 *4-in.* A.A.; 5 M.; 11 L.		25‖	1187
b	**Barham.** .	31,100	643¾	104 0	31 3	75,000 Y.	Clydeb'nk	J. Brown B.C.T.	1914	1915	2,470,113	13–4	3–1	6	4–2	11	6	8 *15-in.*, 12 *6-in.*, 8 *4-in.* A.A., 4 *3-pr.*; 5 M.; 11 L.; 1 catapult, 1 aircraft		25‖	1126
b.	**Warspite** .	30,600	644½	104 ‡ 0	28 2	75,000 Y.	Devonp'rt	Hawthorn P.T.	1913	1915	2,518,360	13-6	3–1	6	4–2	11	6	8 *15-in.*, 8 *6-in.*, 4 *3-pr.*, 8 *4-in.* A.A.; 5 M.; 11 L.; 1 catapult, 1 aircraft.	2 (sub.) 21″	25‖	1130
b.c.	**Hood** . .	42,100	860⅞	105 3	28 6	144,000	Clydeb'nk	J. Brown . B.C.T. (G.)	1918	1920	5,698,946	12–6	3–1	7–5	5–4	11	(*a*)	8 *15-in.*, 10 *5·5-in.*, 8 *4-in.* A.A., 4 *3-pr.*, 2 *2-pr.*; 5 M.; 11 L.	4 a.w. 2 (sub.) 21″	31	1341
b.c.	**Renown*** .	32,000	794¼	102 4	31 0	120,000	Govan .	Fairfield . B.C.T.	1916	1916	3,117,204	9–8 K.C.	2	6–3	4–3	11–7 K.O.	6 K.C.	6 *15-in.*, Repulse; 12 *4-in.*, 4 *4-in.* A.A., 5 M.; 11 L.; catapult and 4 aircraft.	2† (sub.) 21″	31·5‖	1188
b.c.	**Repulse*** .			102 6		112,000 B. & W.	Clydeb'nk	J. Brown . B.C.T.	1916	1916	2,829,087										1209

* Repulse reconstructed, 1936. Renown modernised (1939), including re-engining.

¶ Built at the charge of the Federated Malay States.

† Repulse has 8 a.w. tubes in addition.

‖ Speed without bulges.

‡ Over rubbers.

(*a*) Guns are in shields of 1-in. H.T. plating

GREAT BRITAIN.—Aircraft Carriers.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Extreme breadth under water over rubbers.	Draught.	Horse-Power. Type of Boiler.	Where Built.	Maker of Engines. Type of Machinery.	Date of Launch.	Date of Completion.	Cost.	Armour.		Armament.		Speed.	Complement (War).
												Belt. Deck.	Gun Position.	Guns.	Torpedo Tubes.		
		tons.	ft.	ft. ins.	ft. ins.						£	in.	in.			knots.	
A.C.	Indefatigable	23,000				111,000	J. Brown	J. Brown	Bldg.								
A.C.	Implacable						Fairfield	Fairfield	Bldg.					*4·5-in.* guns			
A.C.	Illustrious						Vickers (Barrow)	Vickers (Barrow)	1939	1940				16 *4·5-in.* guns; 20 smaller		30½	
A.C.	Victorious						Vickers (Walker)	Wallsend	1939								
A.C.	Formidable						Harland & Wolff (Belfast)	Harland & Wolff	1939					*4·5-in.* guns	—	30 (about)	
A.C.	Indomitable						Vickers (Barrow)	Vickers	Bldg.								
A.C.	Ark Royal	22,000	800	94 9	22 10	102,000	Cammell Laird	P.T.(G.)	1937	1938	3,429,593	..	..	16 *4·5 in.* guns; 4 *3-pr.*, 70 aircraft		30¾	..
A.C.	Argus‖	14,000	567	75 9	21 0	20,000	Dalmuir	Beardmore P.T.	1917	1918	Purchased under construction	..	..	4 *3-pr.*, 4 M., 10 L., accommodates 20 aircraft	—	20·2	420
A.C.	Eagle, *ex*-Almirante Cochrane.	22,600	667¼	105 2	21 11	50,000 Y	Walker (Armstrong)	J. Brown B.C.T.	1918 As a battle-ship.	1924 As an aircraft carrier.	4,211,576	.	..	9 *6-in.*, 4 *4-in.* A.A., 4 *3-pr.*, 2 *2-pr.* Pom Poms, 32 smaller, 20 aircraft	—	24	753

A.C. .	**Furious** . .	22,450	786½	90§	1	21	6	90,000 Y.	Walker (Armstrong)	Wallsend Engn'g Co. B.C.T.(G.)	1916 As a cruiser.	1925 As an aircraft carrier.	2,436,603(*a*)	3 —	7	10 5·5-*in*., 3 4-*in*. A.A., 4 3-*pr*., 2 2-*pr*. Pom Poms, 46 smaller, 33 aircraft	—	31	728
A.C. .	**Hermes** . .	10,850	600	70	3	18	7	40,000	Elswick .	Parsons Co. P.T.(G.)	1919	1924	2,030,263‡	..	..	6 5·5-*in*., 3 4-*in*. A.A., 4 3-*pr*., 2 2-*pr*. Pom Poms, 4 M., 16 L., 15 aircraft	—	25	551
S.C. .	**Pegasus** * . . (*ex*-Ark Royal)	6900	366	50	10	17	6	3000	Blyth	Blyth S. B. Co. recip.	1914	1914	Purchased under construction	..	..	4 M., 10 L., 1 catapult	—	11	139
S.C. .	**Albatross** ¶ .	4800	443¾	61	0	15	6	12,000 P.T. (*a*)	Cockatoo Island	Sydney	1928	1929	266,796			4 4·7-*in*. A.A., 4 2-*pr*. Pom Poms, 4 3-*pr*., 4 M.; 20 L.; 9 seaplanes	—	21	350

* Used for experimental work.

|| Used as a training carrier.

‡ Estimated cost including guns.

(*a*) First cost of ship as a cruiser.

§ Over rubbers: 120 ft. over pallisades.

¶ Transferred from Royal Australian Navy.

GREAT BRITAIN.—Cruisers.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam. (Extreme.)	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Complement (War).
		tons	ft.	ft. ins.	ft. ins.						£	in.	in.			knots.	
Norfolk Class	Dorsetshire .	9975	633	66 0	17 0	80,000 (G.)	Portsmouth	Cammell Laird	1929	1930	2,101,951	..	..	8 8-in., 8 4-in. A.A., 4 3-pr., 2 2-pr. Pom Poms, 2 M., 10 L., 1 aircraft, 1 catapult.	8 21″ (Q.)	32¼	710
	Norfolk .	9925					Fairfield	Fairfield .	1928	1930	2,141,961	..	..				685
York Class	Exeter .	8390	575	58 0	17 0	80,000 (G.) Y.	Devonp'rt	Parsons .	1929	1931	1,837,415*	..	..	6 8-in., 4 4-in. A.A., 4 3-pr., 6 M., 8 L., 2 aircraft in Exeter, 1 aircraft in York.	6 21″	32	630
	York .	8250		57 0			Palmers'	Palmers' .	1928	1930	1,774,276	..	..			32¼	623
London Class	Shropshire .	9830	633	66 0	17 0	80,000 (G.)	Dalmuir .	Beardmore	1928	1929	1,941,950†	..	..	8 8-in., 8 4-in. A.A., 4 3-pr. 4 M., 10 L., 1 aircraft, 1 catapult.	8 21″ a.w. (Q.)	32¼	685
	Sussex .	9830	633	66 0	17 0		Hawthorn Leslie .	Hawthorn Leslie .	1928	1929	1,975,800†	..	..				
	Devonshire .	9850	630	66 0	17 0		Devonp'rt	Vickers .	1927	1929	2,007,275	..	..				
	London .	9850	630	66 0	17 0		Portsmouth	Fairfield .	1927	1929	1,966,559	..	..				
Kent Class	Suffolk .	10,000	630	68 4	16 7	80,000 (G.) Y.	Portsmouth	Parsons .	1926	1928	2,180,240†	..	..	8 8-in., 8 4-in. A.A., 4 3-pr., 4 2-pr. Pom Poms, 4 M., 8 L., 3 aircraft Cumberland and Suffolk, 6 4-in. A.A., Kent, 1 aircraft.	..	31½	700
	Berwick .						Govan .	Fairfield .	1926	1928	2,029,526	..	..				
	Cornwall .						Devonp'rt	Beardmore	1926	1928	1,252,110*	..	..				
	Cumberland .						Barrow .	Vickers .	1926	1928	2,960,821*	..	..				
	Kent .						Chatham	Hawthorn	1926	1928	2,084,213†	..	..				
Improved Southampton Class	Edinburgh .	10,000	613½	63 4	17 3	80,000 G.T.	Swan Hunter	Wallsend .	1938	1939	2,162,504‡	..	..	12 6-in., 12 4-in. A.A., 20 smaller, 3 aircraft, 1 catapult.	6	32½	..
	Belfast .						Harland & Wolff	Harland & Wolff			2,176,731‡						

South-ampton Class	**Liverpool**	9400	591½	62 4	17 5	82,500 T.G.	Fairfield	Fairfield	1937	1938		..	..	12 *6-in.*, 8 *4-in.* A.A., 20 smaller, 1 catapult, 3 aircraft	6 21″	32	740
	Manchester						Hawthorn	Hawthorn									
	Gloucester						Devonp'rt	Scotts									
	Newcastle	9100	591½	61 8	17 0	75,000 T.G.	Vickers (Walker)	Vickers	1936	1937	1,960,000‡ each	..	..				
	Glasgow						Scotts	Scotts									
	Sheffield						Vickers (Walker)	Vickers									
	Birmingham						Devonp'rt	J. Brown									
Fiji Class	**Ceylon**	8000	..	..	..	..	Stephen	Stephen	Bldg.	..	..	..	..	12 *6-in.* 8 *4-in.*			
	Jamaica						Vickers (Walker)	Vickers									
	Gambia						Swan Hunter	Wallsend									
	Uganda						Vickers (Barrow)	Vickers									
	Fiji	8000	..	..	..	..	J. Brown	J. Brown	1939	..	..	..	..				
	Kenya						A. Stephen	Stephen	1939								
	Mauritius						Swan Hunter	Wallsend	1939								
	Nigeria						Vickers (Walker)	Parsons	1939								
	Trinidad						Devonport	Hawth'rn	Bldg.								
Arethusa Class	**Aurora**	5270	506	51 0	13 10	64,000 T.G.	Ports-mouth	Wallsend	1936	1937	1,233,921‡	..	..	6 *6-in.*, 4 *4-in.* A.A., 9 smaller, 1 catapult, 1 aircraft. 4 *4-in.* twin mounting in Aurora and Penelope	6 21″	32¼	500
	Penelope						Harland & Wolff	Harland & Wolff	1935	1936	1,263,169‡						
	Galatea	5220					Scott	Scott	1934	1935	1,225,354‡	..	..				
	Arethusa						Chatham	Parsons	1934	1935	1,280,463‡						
Leander Class	**Ajax**	6985	554½	55 8	16 0	72,000 P.T. (G.)	Vickers	Vickers	1934	1935	1,491,417‡	..	..	8 *6-in.*, 8 *4-in.* A.A., 4 *3-pr.*, 5 M.G., 2 seaplanes, 1 catapult.	8 21″	32½	570
	Neptune	7175					Ports-mouth	Parsons	1933	1934	1,560,414‡	..	..				
	Orion	7215					Devonp'rt	Vickers	1932	1934	1,548,663‡	..	..				

* Total estimated cost of ship, including guns.

† Estimated cost, excluding armament and ordnance stores.

‡ Total estimated cost including guns and aircraft.

GREAT BRITAIN—Cruisers, &c.—*continued.*

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam. (Extreme.)	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Maker of Engines	Date of Launch.	Date of Completion.	Cost	Armour.		Armament.		Speed.	Complement (War).
												Belt. Deck.	Gun Position.	Guns.	Torpedo Tubes.		
		tons.	ft.	ft. ins.	ft. ins.						£	in.	in.			knots.	
E Class	Emerald	7550	570	54 7	16 8	80,000 B.C. (G.) Y.	Armstrong	Wallsend	1920	1926	1,617,120	3–1½ 1	..	7 *6-in.*, 3 *4-in.* A.A., 4 *3-pr.*, 2 *2-pr.* Pom Poms, 2 M., 8 L., 1 aircraft.	16 21″	33	577
	Enterprise	7580		54 9			J. Brown	J. Brown	1919	1926	1,690,658*		..				
D Class	Diomede	4850	471¼–472¾	46 3–46 9	14 3	40,000 (G.) Y.	Vickers	Vickers	1919	1922	1,146,904	3 —	Shields	6 *6-in.*, 3 *4-in.* A.A., 2 M., 4 *3-pr.*, 8 L., 2 *2-pr.* Pom Poms.	12 21″	29	460
	Despatch						Fairfield	Fairfield	1919	1922	1,016,870						
	Durban						Scotts	Scotts	1919	1921	954,667						
	Dunedin						Armstrong	Hawthorn	1918	1919	—						
	Delhi						Armstrong	Wallsend	1918	1919	785,145						
	Danaë						Armstrong	Wallsend	1918	1918	701,600						
	Dauntless						Palmers	Palmers	1918	1918	750,025						
	Dragon						Scotts	Scotts	1917	1918	690,083						
Hawkins Class	Frobisher	9860	605	65 1	17 3	65,000	Devonport	Wallsend	1920	1924	2,035,915†	3 —	Shields	4 *4-pr.* H.A., 4 *3-pr.*, 2 *2-pr.*, 2 M., 8 L.	6 21″	30½	715
	Hawkins	9800		65 1		55,000 (G.) Y.	Chatham	Parsons	1917	1919	1,599,741					29½	747
Carlisle Class	Cairo ‖	4200	451¾	43 10	14 1	40,000 (G.) Y.	Cammell Laird	Cammell Laird	1918	1919	787,479	3 —	..	8 *4-in.* A.A., 10 smaller.	8 21″	29	415
	Calcutta ‖						Vickers	Vickers	1918	1919	832,123						
	Capetown §						Cammell Laird	Cammell Laird	1919	1922	984,720			5 *6-in.*, 2 *3-in*, A.A., 4 *3-pr.*, 2 *2-pr.* Pom Poms, 2 M., 8 L.			
	Colombo §						Fairfield	Fairfield	1918	1919	692,308						
	Carlisle ‖						Fairfield	Fairfield	1918	1918	669,216			8 *4-in.* A A.			

Ceres Class	**Cardiff**	4290	450 -450⅓	43 9	14 1	40,000 (G.) Y.	Fairfield	Fairfield	1917	1917	542,507	3 —	..	5 *6-in.*, 2 *3-in.* A.A., 4 *3-pr.*, 2 *2-pr.* Pom Poms; 2 M., 8 L.	8 21"	29	430
	Ceres						J. Brown	J. Brown	1917	1917	529,248						
	Curacoa ‖						Beardmore	Harland & Wolff	1917	1918	794,201						
	Coventry ‖						Swan Hunter	Swan Hunter	1917	1918	586,182			10 *4-in.* A.A., 2 *3-pr.*, 2 multi M.G., 2 M.G., 8 Lewis.	8 21"	29	430
Caledon Class	**Caledon**	4180	450 -450⅓	43 1	14 1	40,000 P.T. (G.) Y.	Cammell Laird	Cammell Laird	1916	1917	547,300	3 —	..	5 *6-in.*, 2 *3-in.* A.A., 4 *3-pr.*, 2 *2-pr.* Pom Poms, 2 M., 8 L.	8 21"	29	420
	Caradoc						Scotts	Scotts	1916	1917	534,583						
Leander Class.	**Achilles**	7030	554½	55 8	16 0	72,000	Cammell Laird	Cammell Laird	1932	1933	..	..	..	8 *6-in.*, 4 *4-in.* A.A., (Leander, 8 *4-in.* A.A.), 1 aircraft	8 21"	32½	570
	Leander	7270		55 2			Devonp'rt	Vickers	1931	1933	1,667,819						
Dido Class	**Charybdis**	5450	..	..	..	..	Cammell Laird	Cammell Laird	Bldg.	..	..	..	..	10 *5·25-in.*	..	33	
	Cleopatra						Hawthorn	Hawthorn									
	Scylla						Scotts	Scotts									
	Dido	5450	..	..	..	62,000 T.G.	Cammell Laird	Cammell Laird	1939	..	..	..	..				
	Euryalus						Chatham	Hawthorn	1939								
	Naiad						Hawthorn	Hawthorn	1939								
	Phœbe						Fairfield	Fairfield	1939								
	Sirius						Portsmouth	Scotts	Bldg.								
	Bonaventure						Scotts	Scotts	1939								
	Hermione						Stephen	Stephen	1939								
Hawkins Class	**Vindictive** ‡	9100	605	65 2	17 3	25,000	Harland & Wolff	Harland & Wolff	1918	1918	1,671,712	3 —	Shields	2 *4·7-in.*, 4 *3-pr.*, 1 *2-pr.* Pom Poms. 2 M., 8 L.	..	20	720
M. Cr. Class	**Adventure**	6740	539	59 0	14 5	40,000 Tur. & Diesel	Devonport	Vickers	1924	1927	1,246,083	..	..	4 *4·7-in.* A.A., 4 *3-pr.*, 4 *2-pr.* Pom Poms. 4 M., 8 L., 310 mines	..	28	700

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* Total estimated cost of ship, including guns. ‡ Vindictive is demilitarised and employed as a cadets' training ship. ‖ Anti-aircraft ship. § Being converted to anti-aircraft ship.

GREAT BRITAIN.—Miscellaneous Craft.

Gunnery Drill Ship (ex-Monitor).—Marshal Soult, 6,400 tons, 2 15-in. guns, 2 3-in. H.A. guns.

Destroyer Depôt Ships.—Greenwich (1916), 8,100 tons, 4 4-in. guns; Woolwich (1935), 8,750 tons, 15 knots, 4 4-in. A.A. Tyne, (building) 11,000 tons, 4 5-in. guns. Hecla, building.

Submarine Depôt Ships.—Lucia, 5,800 tons; Titania, 5,250 tons, 14·5 knots; Alecto, 935 tons; Cyclops, 11,300 tons, 13 knots; Medway (Vickers', 1929), displacement 14,650 tons, speed 15 knots, armament 2 4-in., 4 4-in. A.A., 4 3-pr. Maidstone, 8,900 tons, 17 knots, 8 4·5-in., 4 3-pr. Forth, (as Maidstone). Adamant, building.

Repair Ship.—Resource (Vickers', 1930), displacement 12,300 tons, speed 15 knots, armament 4 4-in. A.A.

Minelayers (ex-Monitors), 1915.—Medusa, Melpomene, Minerva, 355 tons, 10 knots, 52 mines; (ex-trawlers); Linnet, 498 tons, 10½ knots; Plover, 805 tons, 14¾ knots. Redstart and Ringdove (as Linnet). Abdiel, Latona, Manxman, Welshman, 2,650 tons, building.

Surveying Vessels.—Endeavour, 1,280 tons, 13 knots, 1 3-pr.; Challenger, 1,140 tons, 1,200 H.P. (recip.), 12½ knots; Franklin, 830 tons, 17 knots, 1 3-pr. Scott.

Non-magnetic Survey Vessel.—Research, building by Philip at Dartmouth. Sailing vessel. Aux. motor, 160 B.H.P., 770 tons, 6½ knots.

Netlayer and Target Towing Vessels.—Guardian (Chatham, 1931–3), 2,860 tons, 6,500 H.P., 18 knots, 2 4-in. A.A. Protector (1934 programme), 2,900 tons, 20 knots, 1 4-in.

Mining School (Vernon) Tender.—Nightingale (Portsmouth, 1931), Vernon (Portsmouth, 1932), displacement 275 tons, horse-power 400, speed 10 knots, coal capacity 15 tons.

Boom Defence Vessels.—Bownet, Burgonet, Dragonet, Falconet, Magnet, Martinet, Planet, Plantagenet, Signet, Sonnet. 850 I.H.P., 1 3-in. Barbarian Barbette, Barbican, Barbrook, Barcastle, Barcombe, Barcroft, Barnehurst, Barfair, Barfield, Barlane, Barlight, Barlow, Barmouth, Barrage, Barranca, Barricade, Barrier. 730 tons, 850 I.H.P., 11¾ knots, 1 3-in. Dunnet 350 tons, 350 I.H.P., 10 knots, 1 3-in. Quannet. Moorgate, 345 tons, 1 3-in. Aldgate, Bishopsgate, Dowgate, Ludgate, Watergate, 290 tons, 1 3-in. (these vessels are not self-propelled).

Tenders.—(For Submarine depot, Portland), Elfin (1933), 222 tons, 250 H.P., 9¼ knots. (For Torpedo School) Redwing (1933), 225 tons, 250 H.P., 9½ knots.

Gunnery Training Ship.—Battleship Iron Duke has been de-militarised under the London Treaty and converted to a Gunnery Training Ship (1931–32).

Fleet Target Ship.—Centurion (ex-battleship), 25,500 tons.

Trawlers.—Basset (1935), 460 tons. 1 4-in. gun; Blackwater, Foyle and Boyne (War built), 400–500 tons; Lilac, Laurel, Holly, Hawthorn, Cedar, Cypress, Sycamore, Syringa, Magnolia, Willow, 570–600 tons, 1 4-in. gun; Turquoise, Topaze, Sapphire, Jasper, Cornelian, Pearl, Ruby, and Agate, purchased in 1935, 580–640 tons, 1 4-in. gun. Colne, Doon, Dee, Garry, Kennet, Liffey, 10½ knots. 1 12-pr. Redwood, Oak, Maple, Larch, Hornbeam, Berberis, Beech, Alder, 500–600 Tons. Arctic Ranger, Arsenal, Bandolero, Bedfordshire, Bengali, Brontes, Cambridgeshire, Cape Argona, Cape Cormorin, Daneman, Davy, Derby County, Drangey, Huddersfield Town, Istria, Kelt, Kingston Andalusite, Kingston Chrysolite, Kingston Olivine, Kirkella, Lady Beryll, Lady Elsa, Leeds United, Leyland, Loch Melfort, Loch Tulla, Lord Hotham, Lord Lloyd, Lord Plender, Lord Wakefield, Man o' War, Pict, Regal, Saon, Sindonis, Spaniard, Spurs, Stafnes, Stella Capella, Thornwick Bay, Turcoman, Vascama, Victorian, Warwick Deeping, Wellard, York City. 4 in No. Trawlers building in Portugal.

Cable Vessels.—Lasso, 910 tons, 1100 I.H.P., 13 knots; Kilmun, 700 I.H.P., 10 knots.

Motor Torpedo Boats.—Nos. 6–12 and 14–18 are of the same design, 60 ft. long. 18 tons, 1,500 B.H.P., 35 knots, 8 small guns, 2 torpedoes. There is no No. 13 M.T.B. No. 22 70 ft., 32 tons, 3650 B.H.P., 40 knots, 2 torpedoes. No. 100 (ex-M.M.S. 51). M.T.B. 101, 67 ft., 22 tons, 2 torpedoes. M.T.B. 102, 68 ft., 28 tons, 3000 B.H.P., 44–48 knots, 2 21-in. torpedoes. Bloodhound, 35 tons; length, 68 ft.; beam, 19 ft.; 25 knots.

Motor Minesweepers.—Nos. 1 and 2, 52 tons, 1,500 H.P., 15 knots.

Auxiliaries.—Tugs, Drifters, Hospital Ship (Maine, 10,100 tons), Oilers, Store ships, Mooring lighters, etc.

Monitors.—Erebus and Terror 7,200 tons, 12 knots, 2 15-in., 8 4-in., 2 3-in. A.A. 12 smaller guns.

Fleet Air Arm Supply and Depôt Ship.—Unicorn, building.

For sloops, corvettes, minesweepers and river gunboats, see Flotilla tables, pp. 271–279.

Defence Forces of the Dominions.

ROYAL AUSTRALIAN NAVY.

Under Control of the Australian Naval Board.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam. (Extreme.)		Draught.		Horse-Power. Type of Machinery and Boilers.	Where Built.	Maker of Engines.	Date of Launch	Date of Completion.	Cost.	Armour. Belt. Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Complement (War).
		tons.	ft.	ft.	in.	ft.	in.						£	in.	in.			knots	
Kent Class Cruisers	Australia	9870	630	68	4	16	3	80,000 B.C. (G.) Y.	Brown Clydebank	Brown	1927	1928	..	..	..	8 *8-in.*, 4 *4-in.* A A., 4 *3-pr.*, 4 *2-pr.* Pom Pom, 4 M., 12 L., 1 aircraft, 1 catapult.	8 21″ a.w. (Q.)	31½	685
	Canberra	9850																	
Modified Leander Class	Sydney	6850	530 b.p.	56	8	15	8	72,000 P.T. (G.)	Swan Hunter	Wallsend	1934	1935	1,426,791*	..	..	8 *6-in.*, 8 *4-in.* A A., 18 smaller, 1 catapult, 2 aircraft (Sydney, 1 aircraft)	2 Q. 21″	32½	590
	Hobart (late Apollo)	7000	562	56	8	15	8		Devonport	Beardmore	1934	1936	1,459,117*	..	..		8 21″		
	Perth (late Amphion)	7100	560	56	8	15	8		Portsmouth	Beardmore	1934	1936	1,506,668*	..	..				
Adelaide Type Cruiser	Adelaide	5100	462½	50	1	15	10	25,000 P.T. Y.	Sydney	Sydney	1918	1922	..	3 —	..	9 *6-in.*, 1 *3-in.* A.A., 4 *3-pr.*, 8 L., 2 M.	2 (sub.) 21″	25·5	450
Flotilla Leader	Stuart	1530	332½	31	9	12	3	40,000	Hebburn	Hawthorn Leslie	1918	1918	—	—	—	5 *4·7-in.*, 1 *3-in.* A.A., 7 M. & L.	6	36½	182
Tribal Class Destroyers	Number uncertain	..	..	..		..		..	..	..	bldg.	..	500,000 approx.	..	..	..	..	..	...

DESTROYERS.—"*V*" *Class*:—Vampire, Vendetta, Voyager, Waterhen. Completed, 1917–18; Displacement, 1,090 tons; 27,000 H.P.; speed, 34 knots; armament, four 4-in.; 6 smaller guns, 6 torpedo tubes.

SLOOPS.—Yarra (1935), 1060 tons, 2000 H.P. (T.G.), 16½ knots, 3 4-in., 4 3-pr., and Swan (1936). Parramatta and Warrego (1940), repeat vessels.

SURVEYING VESSEL—Moresby (late Silvio) (1918), 1650 tons, length 267½ ft., 2,500 H.P., 15 knots, one 3-pr.

DEPÔT AND FLEET REPAIR SHIP—Penguin (late Platypus) (J. Brown, Clydebank, 1917). Displacement 3455 tons, 14 knots, 1 4-in.

BOOM DEFENCE VESSELS—Kookaburra, 523 tons. Koala, Kangaroo, building.

MINESWEEPERS.—48 in number, building.

* Total cost, including guns and aircraft.

NEW ZEALAND DIVISION OF ROYAL NAVY.

Under the control of New Zealand Naval Board.

Training and Depot Ship.—Philomel (2570 tons); 1 6-in., 1 4-in., 2 12-pr. Trawler.—Wakakura.
The Cruisers Achilles and Leander, the Sloops Leith and Wellington and the Surveying Vessel Endeavour are allocated to the station.

ROYAL CANADIAN NAVY.

Under control of the Canadian Department of National Defence.

Destroyers.—St. Laurent, ex-Cygnet taken over by Canada 1936. Built by Vickers 1932; 1375 tons; 36,000 H.P.; 36 knots; armament, 4 4·7-in., 7 smaller guns, 2 Quadruple 21-in. torpedo tubes. Restigouche (late Comet) and Ottawa (late Crusader) 1375 tons; 36 knots; 4 4·7-in., 6 smaller guns, 8 torpedo tubes. Saguenay and Skeena completed at Thornycroft's in 1931: displacement. 1337 tons; 32,000 H.P.; speed. 35 knots; armament, 4 4·7-in., 2 2-pr., 2 quad. 21-in. torpedo tubes; oil, 440 tons. Assinboine (late Kempenfelt), built by J. S. White, 1937; 1390 tons; 36,000 S.H.P.; 35½ knots; 4 4·7-in., 2 2-pr., 8 21-in. torpedo tubes.
Government Vessels (armed).—A number of trawlers are used for patrol and reserve.
Minesweeping Trawlers.—Armentières (1918), 360 tons; Comox, Nootka, Gaspe and Fundy (1938), 668 tons, 950 I H.P., 12½ knots, 1 4-in.
Minesweepers.—12 in number, building,
Corvettes.—10 handed over to Royal Navy. A further 35 building.

SOUTH AFRICA.

[A number of Minesweepers and other small craft.]

ROYAL INDIAN NAVY.

Minesweeping Sloops.—Indus (1935, Hawthorn Leslie), 1,190 tons; 2,000 H.P.; 16¼ knots; 2 4.7-in., 4 3-pr., 11 smaller guns. Hindustan (1930, Swan Hunter), 1,190 tons; 2,000 H.P.; 16¼ knots; 2 4-in., 4 3-pr., 10 smaller guns. Clive, 2,021 tons; 1,700 H.P.; 14½ knots; 2 4-in., 2 2-pdr., 4 3-pdr. guns; completed Beardmore, 1920. Lawrence, 1,259 tons; 1,900 H.P.; 15 knots; 2 4-in., 4 3-pdr., 2 2-pdr. guns; launched Beardmore, 1919.
Sloop.—Cornwallis, 1,345 tons; 17 knots; 2,500 H.P.; 3 4-in., 2 2-pdr., 4 3-pdr. guns (launched Hamilton, 1917, as the Lychnis).
Surveying Ship.—Investigator (Simons, 1907), 1,172 tons; 1,137 H.P.; 13 knots; no guns.
Trawler.—Madras.

ARGENTINE REPUBLIC.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel. Coal. / Oil.	Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position. Heavy Guns.	Gun Position. Second-ary.	Guns.	Torpedo Tubes.			
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons	
c.	La Argentina	6500	535	56	16	55,000 P.T. (G.) Y.	Vickers, Barrow	1937	1938	..	..	..	..	..	..	..	9 *6-in.*, 4 *4-in.* A A., 2 *3-in.*, 25 A.A. M.G., 1 catapult, 2 aircraft.	6 21″ (T.)	30	1000	556 +60 Cd.s.
c.	Almirante Brown	6495	515¾	58	16¼	85,000 Y. (G.)	Genoa	1929	1931	1,250,000	3	1	..	..	2	2	6 *7·5-in.*, 12 *4-in.* A.A., 6 Pom Poms, 1 catapult, 2 seaplanes.	6 21″ (T.)	32	— / 1800	600
c.	Veinticinco de Mayo						Leghorn														
c.d.s.	General Belgrano†	6100	328	59¾	24	13,000	Leghorn	1897	1899	696,700	6–3 H.S.	1½	6 H.S.	6 H.S.	6 H.S.	6 H.S.	2 *10-in.*, 8 *6-in.*, 4 *6-pr.* 2 1·5-*in.* A.A.	—	20	— / 1000	515
c.d.s.	Pueyrredon †	6100	328	59¾	24	13,000	Sestri Ponente	1898	1901	782,000	6–3 H.S.	1½	6 H.S.	5 H.S.	6 H.S.	6 H.S.	2 *10-in.*, 8 *6-in.*, 4 *6-pr.*, 1 *1-pr.* A.A.	—	20	— / 1000	430
b.	Moreno	27,940	585	97¾	28	45,000* (G.)	Camden, N.J. (N.Y.S.B.Co.)	1911	1915	2,200,000	12–10 K.S.	3–2	9–6 K.S.	9 K.S.	12–9 K.S.	6 K.S.	12 *12-in.*, 12 *6-in.*, 4 *3-in* A.A., 6 M., 4 L.	2 (sub.) 21″	22·5	— / 4200	1215
	Rivadavia						Quincy, Mass.		1914												

Coast Defence Ships.—Libertad and Independencia, 2510 tons, 13 knots, completed at Birkenhead in 1891–93, and converted to oil fuel in 1927, carry two 9·4-in., four 4·7-in., and four 3-pr. guns.

River Gunboats.—Paraná and Rosario (Elswick, 1908), 1055 tons, two 6-in. howitzers, six 3-in., 2 L., 15 knots.

Training-Ship (cruiser).—Presidente Sarmiento (Birkenhead, 1896; refitted 1926), 2320 tons, 15 knots; four 4·7-in., four 6-pr., two 3-pr., 3 torpedo tubes.

Surveying Vessels.—Comodora Rivadavia, ex-San Juan, Bahia Blanca ex-San Luis (Hawthorn Leslie, Newcastle, 1928), 790 tons, 1—3-in. 12 knots, Alferez Mackinlay (1914), 783 tons, 10 knots. Escort Vessels.—Murature, King (building), 800 tons, 4000 B.H.P., 16 knots.

Tugs.—Mataco, Toba (completed 1928, at Messrs. Hawthorn Leslie's, Newcastle), Azapardo (1919), Ona, Querandi (Thornycroft, 1914), and 9 others.

Minesweepers.—Comodoro Py, Bouchard, Drummond, Granville, Parker, Robinson, Seaver, and Spiro (1937–38); 550 tons; 2000 H.P.; 16 knots; two 3·9-in., two 2·9-in. guns; 5 ex-German Minesweepers; 16 knots; three 3-in. guns. 3 Oilers, 3 Transports.

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* Moreno and Rivadavia were converted to oil burning and fitted with geared turbines in 1928.

† Converted to oil burning and armament altered in 1929. Used as training ships.

BRAZIL.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Coal / Oil.	Complement.
											Belt.	Deck.	Side above Belt.	Bulkheads.	Gun Position. Heavy Guns.	Gun Position. Second-ary.	Guns.	Torpedo Tubes.			
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	**Minas Geraes** *	19,200	541	83	25	25,000 *t* B.&W.	Elswick .	1909	1910	1,821,400	9–6–4 K.S.	2	9–6–4 K.S.	9	12–8 K.S.	9 K.S.	12 *12-in.*, 14 *4·7 in.*, 4 *3-in.* A.A.; 2 *3-pr.*, 8 A.A. M.G.	—	21	Oil	850
b.	**São Paulo** *						Barrow .	1908	1910												
cr.	†**Bahia** . .	3150	401½	39	18½	22,000 B.C.T. (G.) Th.	Elswick .	1909	1910	..	..	..	..	..	..	..	10 *4·7-in.*, 4 *3-pr.*	4 21″ (D)	27	— 640	450
cr.	†**Rio Grande do Sul** . .																				

* Reconstructed and converted to oil fuel, 1934–39, 1937–40 respectively.

† Reconstructed, including conversion to oil fuel, at Rio de Janeiro, 1926.

River Gunboat.—Oyapock, 195 tons, 14 knots, two 3-pr.

Minelayers.—Cananea, Cabedelo, Camocim, Canavieras, Caravelas, Carioca, 188¾ feet, 552 tons, 2500 H.P., 14 knots, 1 4-in. gun, 50 mines. Itapemerim, 118 ft., 150 tons, 2 1·5-in., 30 mines.

River Monitors.—Pernambuco, 470 tons, 11 knots, built at Rio de Janeiro (1910), two 4·7-in., 2 3-pr. guns. Parnahyba, 600 tons, 180½ feet in length, 12 knots, one 6-in. gun. Paraguassu, 430 tons, 146 feet, 1 4·7-in. gun., 13 knots.

Submarine Tender.—Ceará (Spezia, 1916), 4000 tons, 4100 H.P., 14 knots, four 4-in. guns.

Repair Ship.—Belmonte (ex-German SS. Valesia), 5227 tons gross, four 4·7-in, six 6-pr., 2700 H.P. 12 knots.

Training Ship.—Almirante Saldanha, Vickers' (1934). A four-masted schooner, 3325 tons, 305 feet over all, four 4-in. and one 3-in. A.A. guns, one 21-in. torpedo tube, 1400 B.H.P.aux., 12 knots.

Survey Vessels.—Rio Branco, 895 tons, 15 knots, two 6-pr. Vital de Oliveira, Jose Bonifacio, 1,300 tons, 9 knots, two 4-in., two 6-pr., Jaceguay, 800 tons, 16 knots.

5 Tugs, Tenders, 3 Tankers and River Craft.

CHILE.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel.		Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position.		Guns.	Torpedo Tubes.		Coal.	Oil.	
															Heavy Guns.	Secondary.						
		tons.	ft.	ft. ins.	ft. ins.					£	in.	in.	in.	in.	in.	in.			knots.	tons.		
b.	**Almirante Latorre** * (ex-H.M.S. Canada)	28,950	661	92 6	29 0	37,000 P.T. Y.	Elswick	1913	1915	..	9–4	4–2½	4½	..	10	6	10 *14-in.*, 14 *6-in.*, 4 *4-in.*, A.A., 2 *3-in.*, A.A., 4 *3-pr.*, 1 catapult.	4 (sub.) 21″	23	—	4300	1000
cr.	**General O'Higgins**	6,977	412 p.p.	62 9	22 0	16,000 B.	Elswick	1897	1898	..	7–5	2	..	..	7½–6	6	4 *8-in.*, 10 *6-in.*, 12 *3-in.*, 4 M.	2 18″	21·5	1200	—	500
b	**Capitan Prat** †	5,416	328 p.p.	60 9	22 9	12,000	La Seyne	1890	1893	391,000	12	3	4	..	10½	2	4 *9·4-in.* (Canet), 8 *4·7-in.* (Canet), 8 *6-pr.*, 11 M.	2 18″	18	775	—	500
c.	**Blanco Encalada** †	3435	370 p.p.	46 6	19 6	14,500	Elswick	1893	1894	..	..	4–1⅝	..	..	..	..	2 *8-in.*, 8 *6-in.*, 4 *3-in.*	2 18″	22·7	850	—	385

* Fitted with bulges, converted to oil burning, and modernised in England (completed 1931).

† Training ship.

OILERS (Armstrongs, 1930)—Maipo, Rancagua, 3,080 tons displacement, two 4·7-in. guns. COASTGUARD VESSELS—Orompello, Leucoton, Elicura, 530 tons; built 1919; 1400 I.H.P.; 14 knots; 2 3-in. guns. Sibbald, Yelcho, Micalvi, Condor, and Yanez. SUBMARINE DEPOT SHIP—Araucano (Vickers-Armstrongs, Barrow), completed 1930; displacement 5,890 tons; armament two 4·7-in., two 3-in. A.A.; length b.p. 390ft.; beam 55 ft.; draught 16 ft. 6 ins.; speed 13 knots; H.P. 2,500; 1 seaplane.

Five tugs, 790 tons, 11 knots. Two towing launches. Two Cruisers projected, probably 10,000 tons, with 8-in. guns. Two Tugs projected.

DENMARK.*

Class.	NAME.	Standard Displacement.	Length. (Extreme.)		Beam.		Draught.		Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed	Fuel.		Complement.
														Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position.		Guns.	Torpedo Tubes.		Coal.	Oil.	
																		Heavy Guns.	Second-ary.						
		tons.	ft.	ins.	ft.	ins.	ft.	ins.					£	in.	in.	in.	in.	in.	in.			knots.	tons.		
cr.	**Niels Juel** .	3800	295	4	53	6	15	9	5500	Copenhagen	1918	1923	..	8–4 K.S.	2	..	..	..	2 K.S.	10 5 *9-in.*, 2 *6-pr.*, 8 M.G., 10 20-m.m. A.A.	2 (sub.) 18″	17·0	240	250	365
c.d.s.	**Peder Skram** .	3500	286	7	51	6	16	3	5400	Copenhagen	1908	1909	..	8–4 K.S.	2	..	..	7 K.S.	6 K.S.	2 *9·4-in.*, 4 *5·9-in.*, 8 *3-in.*, 2 *1-pr.*, 2 *3-in.* A.A., 2 M.	4 (sub.) 18″	16·0	250	—	275

* Under the control of Germany.

Minelayers.—Lossen 640 tons, 12 knots, 2 3-in., 2 A.A. guns, 175 mines; Sixtus and Kvintus, 186 tons, 8 knots, 2 1-pr. guns, 60 mines; Mining boats 1–10. Mine depôt boats, 1–2. Steamboat A, 96 tons, 7 knots, 2 M.G. Lindormen, 500 tons, 14 knots, building.

Minesweepers.—Springeren, Storen, Soridderen, Sohunden, Havhesten and Narhvalen, 110 tons, 24·3 knots, 2 2½-in. guns, 1 torpedo tube; Soloven, Sobjörnen, Soulven, 270 tons, 18 knots, 2 3-in.

Corvettes.—Hvalrossen, 169 tons, 26·3 knots, 1 3-in. gun, 4 18-in. torpedo tubes; Makrelen, Nordkaperen, Havkatten, and Saelen, 110 tons, 24·3 knots, 2 2¼-in. guns, 4 18-in. torpedo tubes.

Surveying Vessels.—Hejmdal, 705 tons, 12½ knots, 2 3-in. guns, 4 20-mm. A.A.; Ternen, 80 tons, 1 37-mm. Freja, 315 tons, 10 knots, building.

Repair Ship.—Henrik Gerner, 463 tons, 13 knots, 2 3-in., 2 ¾-in. guns, 80 mines.

Fishery Protection Vessels.—Ingolf, 1180 tons, 16½ knots, 2 4·7 in., 2 2¼-in. guns, 1 aircraft; Hvidbjörnen, 1050 tons, 14½ knots, 2 3½-in. guns; Islands Falk, 730 tons, 13 knots, 2 3-in., 2 1¾-in. guns; Beskytteren, 415 tons, 11 knots, 1 2¼-in. gun; Maagen, 110 tons, 8 knots, 1 1½-in. gun; Aegir, 500 tons, 14 knots, 2 6-pr.

Depot Ships.—Hekla, Gronsund, Fyen. **Transport Ships.**—Sleipner, 110 tons, 8·7 knots; Middegrunden, Fremad, Kongedybet. 3 Icebreakers. 3 Cable Ships.

FRANCE.—Battleships.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel. Coal. / Oil.	Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position.		Guns.	Torpedo Tubes.			
															Heavy Guns.	Second-ary.					
		tons.	ft. ins.	ft. ins.	ft. ins.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	Richelieu	35,000	794 0 W.L.	108 6	26 7	155,000	Brest .	1939	1940	..	9–16	8	..	..	..	..	8 *15-in.*, 15 *6-in.*, 8 *1·5-in.* A.A., 2 catapults, 4 aircraft.	..	about 31	..	1500
b.	Jean Bart						St. Nazaire	1939	1940	..											
b.	Clemenceau						Brest .	Bldg.	..	..											
b.c.	Strasbourg	26,500	702 0	101 8	25 0	100,000 P.T. (G)	St. Nazaire	1936	1938	..	10–8	4–9	..	..	13·8	..	8 *13-in.*, 16 *5·1-in.*, 44 *smaller*, 1 catapult, 4 aircraft	..	29½	..	1431
b.c.	Dunkerque						Brest .	1935	1937	5,200,000											
b.	Bretagne † * .	22,189	544 6	88 6	32 0	43,000 P.T.	Brest .	1913	1915	2,589,439	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	10 *13·4-in.*, 14 *5·4-in.*, 8 *3-in.* A.A., 5 *3-pr.*, 2 *1-pr.*, 2 L., 4 seaplanes, 1 catapult.	4 (sub.) 18″	21·0	— 2600	1190
b.	Provence †						Lorient .	1913	1916	2,589,000											

† Reconstructed and modernised between 1923 and 1935.

* Probably a total loss.

FRANCE.—Battleships—*continued.*

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel.	Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position. Heavy Guns.	Gun Position. Second-ary.	Guns.	Torpedo Tubes.		Coal. Oil.	
		tons.	ft. ins.	ft. ins.	ft. ins.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	**Courbet** † .	22,189	551 0	92 6	32 0	28,000 Nic. P.T.	Brest .	1911	1913	2,508,388	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	12 *12-in.*, 22 *5·4-in.*, 2 *3-pr.*, 7 *3-in.* A.A., 2 *1-pr.*, 2 L.	4 (sub.) 18″	20·0	300 2700	1068
b.	**Paris** † . .	22,189	551 0	92 6	32 6	28,000 N. P.T.	La Seyne .	1912	1914	2.603,920											
b.	**Lorraine** † .	22,189	544 6	88 6	32 0	42,000 B. P.T.	St. Nazaire	1913	1916	2,642,439	11–7 K.S.	2¾–1¾	7 K.S.	7 K.S.	10½ K.S.	7 K.S.	8 *13·4-in.*, 14 *5·4-in.*, 8 *3·9-in.* A.A., 5 *47mm.* A.A., 2 *1-pr.*, 2 L., 2 aircraft, 1 catapult	4 (sub.) 18″	21½	300 2600	1167

† Reconstructed and modernised between 1923 and 1935.

Aircraft Carriers.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Fuel. Coal. / Oil.	Complement.
		tons.	ft. ins.	ft. ins.	ft. ins.					£	in.	in.			knots.	tons.	
A.C.	**Bearn** *	22,146	599 0	115 6	30 6	37,200	La Seyne	1920	1928	..	3¼ / 1–3	..	8 *6·1-in.*, 6 *3-in.* A.A., 8 *1-pr.* A.A., 12 M. A.A., 41 planes	4 21·7"	21·5	— / 2070	875
Aircraft Transport	**Commandant Teste**	10,000	548 0	88 7	22 9	21,000 †	Bordeaux	1929	1932	..	2 / 1½	..	12 *3·9-in.* A.A., 8 *3-pr.* A.A., 12 M., 19 planes, 4 catapults, 5 cranes.	—	20·5	oil	648
A.C. A.C.	**Joffre** **Painleve**	18,000	775 0	112 0			St. Nazaire	Bldg.					*5·1-in.* guns, 40 planes.		32		

* Originally designed and laid down as a battleship; reconditioned 1935.

† Schneider-Zoelly turbines (G.). Yarrow-Loire S.T. boilers.

FRANCE.—Cruisers.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Fuel. Coal. / Oil.	Complement.
		tons.	ft. ins.	ft. ins.	ft. ins.					£	in.	in.			knots.	tons.	
Training cruiser	Jeanne d'Arc	6496	557 8	57 6	18 8	32,500	St. Nazaire	1930	1931	..	..	..	8 *6·1-in.*, 4 *3-in.* A.A., 2 *1·5-in.*, 2 M., 2 seaplanes	2 21·7″	26	— / 1400	506
1931–32 *programme*	Jean-de-Vienne	7600	589 0	57 2	16 5	84,000 G.T.	Lorient	1933	1937	..	4¾	Deck 1½	9 *6-in.*, 8 *3·5-in.* A.A., 8 ·5-in. A.A. M., 1 catapult, 4 aircraft	4 21·7″	31	— / 1500	537
	La Galissonnière						Brest		1935								
Improved La Galissonnière	De Grasse	8000	..	..	..	..	Lorient	Bldg.	..	..	..	..	9 *6-in.*, 2 aircraft	6 21″	..	..	..
1932–33 *programme*	Marseillaise	7600	589 0	57 4	17 5	84,000 (G.)	St. Nazaire	1935	1937	..	4¾	Deck 1½	9 *6-in.*, 8 *3·5-in.* A.A., 8 *·5-in.* A.A., 4 seaplanes, 1 catapult	4 21·7″	31	— / 1500	630
	Gloire						Bordeaux	1935									
	Montcalm						La Seyne	1935									
	Georges Leygues						St. Nazaire	1935									
—	Algérie	10,000	610 3	65 8	23 0	84,000 (G.) Pen.	Brest	1932	1934	1,920,000	about 4	Deck 3	8 *8-in.*, 12 *3·9-in.* A.A., 8 *1·5-in.*, 16 M., 1 catapult, 2 seaplanes	2 triple 21″	31	— / 1900	746
Suffren Class	Dupleix	10,000	636 6	63 6	24 0	90,000 (G.)	Brest	1930	1932	1,570,000	..	..	8 *8-in.*, 8 *3·5-in.* A.A., 6 *1-pr.* A.A., 12 M., 3 seaplanes, 2 catapults	2 triple 21″	32	— / 1800	605
	Foch							1929	1931	1,450,000							
	Colbert							1928	1931	1,270,000							
	Suffren	10,000	607 0 b.p.	65 0	24 0	90,000 (G.)	Brest	1927	1930	1,210,000	..	..	8 *8-in.*, 8 *3-in.* A.A., 8 *1-pr.* A.A., 12 M., 3 seaplanes, 2 catapults	2 triple 21″	32	— / 1800	605
Duquesne Class	Tourville	10,000	626 8	62 4	23 0	120,000 (G.)	Lorient	1926	1928	..	..	..	8 *8-in.*, 8 *3-in.* A.A., 8 *1-pr.*, 2 seaplanes, 1 catapult	2 triple 21″	33·2	— / 2000	620
	Duquesne						Brest	1925									

Duguay-Trouin Class	**Duguay-Trouin**	7249	594	10	57	6	20	8	110,000 (G.)	Brest .	1923	1926	..	..	..	8 *6·1-in.*, 4 *3-in.* A.A., 2 *3-pr.*, 4 M., 1 L., 1 seaplane, 1 catapult	4 triple 21·7"	34	— 1480	578
	Primauguet .									Brest .	1924	1926								
	La Motte Picquet									Lorient .	1924	1926								
M.Cr. .	**Emilé Bertin** .	5886	580	9	52	0	16	4	102,000 P.T. (G.)	St. Nazaire .	1933	1934	..	..	..	9 *6-in.*, 4 *3·5-in.* A.A., 4 *1·5-in.* A.A., 200 mines, 8 M., 1 catapult, 2 aircraft	6 21·7" a.w. (T.)	34·0	— 1800	550

River Gunboats.—Francis Garnier (1929), 639 tons, 15 knots, two 4-in., one 3-in. A.A.; Vigilante, Argus (1924), 218 tons, 12 knots, two 3-in., two 1-pr.; Balny (1921), 201 tons, 14 knots, one 3-in.; Doudart de Lagrée (1909), 183 tons, 14 knots, one 3-in., two 1-pr. ; Mytho, Tourane (1934), 95 tons, 250 H.P. (Diesel), 10 knots, one 3 in., two 1-pr.; Avalanche and Commandant Bourdaise (1920), 128 tons, 16·5 knots, one 3-in. gun, two 1-pr.; No. 1 (1925), 38 tons, 9 knots, one 1·5-in.

Minesweepers.—Conquérante (1918), 374 tons, 17 knots, two 3·9-in.; Luronne (1917), 266 tons, 13·8 knots, two 3·9-in.; Engageante, (1917), 315 tons, 14½ knots, two 3·9-in.; Étourdi (1916), 310 tons, 17 knots, two 3·9-in.; Dédaigneuse, Tapageuse (1916), 266 tons, 15 knots, two 3·9-in.; Granit, Meulière (1919), 354 tons, 12·5 knots, one 9-pr., Commandant Bory, Commandant Delage, Commandant Duboc and Commandant Riviere, 630 tons, 20 knots, two 3·9-in.; Elan, Chamois, Chevreuil, Gazelle 630–647 tons, 20 knots, two 3·9-in.; Annamite, La Surprise, 647 tons; La Capricieuse, La Moqueuse, Commandant Domine, L'Impetueuse, La Curieuse, La Boudeuse, La Batailleuse, La Gracieuse, Amiral Senes, Enseigne Ballande, Matelot Leblanc, Rageot de la Touche, 630 tons, 20 knots, two 3·9-in. guns.

Minelayers.—Castor, 3,150 tons, 14 knots, four 3·9-in., two 1·5 A.A., 368 mines; Pollux, 2,461 tons, 14 knots, four 3·9-in., 234 mines. Both converted 1930.

Submarine Parent Ship.—Jules Verne (1931), 5,747 tons, 7,000 H.P. (Diesel), 16 knots, mounting four 3·5-in. A.A., four 1-pdr. A.A.

Colonial Sloops.—Dumont D'Urville, Savorgnan de Brazza, and d'Entrecasteaux (1932–1933), Amiral Charner, and D'Iberville (1933–1935), Beautemps-Beaupré and La Grandiere (1917), 1969 tons, 3,200 H.P. (Diesel), 17 knots, armament three 5·4-in., four 1·5-in. A.A., 6 M., 50 mines, 1 seaplane; Ville d'Ys (ex-Andromede) (1917) (on fishery protection duties), 1,122 tons, 17 knots, mounting three 3·9-in., two 3-in. (1 A.A)., 2 M.

Despatch Vessels.—Duperré Class:—Enseigne Henry, Dubourdieu (1919–1920), 453 tons, 17 knots, one 5·4-in., one 3·9-in. "Arras" Class:—Calais, Lassigny, Vauquois, Epinal, Coucy, Amiens, Tahure, Arras (1919–1923), 644 tons, 20 knots, two 5·4-in., one 3-in. A.A. guns. "Aisne" Class:—Ailette, Suippe, Yser, Somme, Marne (1917–1918), 490–600 tons, 21 knots, four 3·9-in. guns, one 3-in.

Net-Layers.—Le Gladiateur, (1934), 2,293 tons, 370 ft. 8 in. long, 7,700 H.P., 21 knots, four 3·5-in. A.A., 6 M.

Surveying Ships.—Amiral Mouchez, 719 tons, 12 knots, two 3·9-in.; La Perouse, 780 tons, 11 knots; Astrolabe, Octant, and Gaston-Rivier (1918), 315 tons, 10 knots; Chimère (1901), 613 tons, 14 knots; Estafette, Sentinelle, 315 tons, 10 knots; Les Eparges, Ypres, 644 tons, 20 knots, one 3-in. gun.

Motor Torpedo Boats.—V.T.B.'s 8 and 10, 62 ft., 19 tons, 2000 H.P., 46 knots; V.T.B.'s, 11–14, 45 knots, 28 tons, building; V.T.B.'s, 15–40, 37 tons, building.

Submarine Chasers.—Nos. 1–4 (1935), 148 tons, 2,400 H.P., 20 knots, one 3-in. gun. Four in number (1940), 112 tons, 16 knots. Eight in number (1918), 70 tons, 16 knots, one 3-in gun. Thirteen in number, 112 tons, 16 knots, building. Eight in number, 130 tons, 16 knots, building, fitted for depth charges.

Patrol Vessels.—Primevère, 490 tons, 8 knots; Fauvette II, Passereau II, 315 tons, 10 knots; Quentin-Roosevelt, 586 tons, 13 knots.

Refrigerator Ships.—Champlain (1919), 520 tons, one 3-in. gun; Austral, Boreal, 2,230 tons, 1,200 I.H.P., 12 knots, one 3-in. gun.

Aircraft Supply Ships.—Belfort, 644 tons, one 3-in. gun; Hamelin, 622 tons, one 3-in. gun; Sans-Souci, Sans Peur, Sans-Reproche, Sans-Pareil, 1,200 tons, one 3-in. gun, building.

Three Cable ships. Four Water carriers. Tugs. Three Training ships.

Transports.—Golo, 2118 tons, 12½ knots, two 3-in., two 1-pr.; Loiret, Coetlogon, Forfait, Jeanne-of-Genevieve, 622 tons, 12 knots, one 3-in. gun; Aude, 1,820 tons, 12 knots.

Oilers.—Adour, Lot, Tarn (1940), 4,200 tons, 5,000 S.H.P., 15 knots; Charente, Mayenne, Baise (building); Mekong, Niger, Elorn and Varn, 5,482 tons, 6,000 H.P., 13½ knots, two 3·9-in. guns, two 1·5-in. A.A.

GERMANY.—Battleships.

Class.	NAME.	Normal Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Second-ary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal. / Oil.	Complement.
		tons.	ft. ins.	ft. ins.	ft. ins.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b. .	"H" and "I" .	40,000	..	..	..	..	..	Bldg.	..	..	..	..	..	..	..	..	..	..	..	..	..
b. .	Bismarck . .	35,000	792 0	118 0	26 0	..	Hamburg	1939	1941	..	..	..	..	..	..	..	8 *15-in.*, 12 *5·9-in.*, 16 *2-in.*, 4 seaplanes	..	abt. 28	..	..
b. .	Tirpitz . .						Wilhelms-haven	1939	1941	..	..	..	..	..	..	..					
b.c.	Scharnhorst	26,000 (standard)	741 6	98 6	24 8	..	Wilhelms-haven	1936	1939	..	13	6	..	..	..	..	9 *11-in.*, 12 *5·9-in.*, 14 *4·1-in.* A.A., 16 *1·5-in.* A.A., 4 aircraft, 2 catapults	..	27	..	..
b.c.	Gneisenau						Kiel	1936	1938												
b.* .	Lutzow (*ex*-Deutschland)	10,000 (standard)	609 3	67 6	19 0	54,000–56,800 Diesel ‡	Deutsche Werke, Kiel	1931	1933	estimated 3,750,000	about 4	1½–3	—	—	about 7	—	6 *11-in.*, 8 *5·9-in.*, 6 *4·1-in.* A.A., 8 *1·5-in.* A.A., 10 M., 1 catapult, 2 aircraft	8 21″ (Q.)	26	— / 1200	965
b.* .	Admiral Scheer						Wilhelms-haven	1933	1934	estimated 3,530,000											
b. .	Schlesien † . .	12,300	419 0	72 10	25 3	17,000 T.S. recip.	Schichau	1906	1908	1,214,000	9½–4 K.S.	3	8 K.S.	6 K.S.	11–6 K.S.	6¾ K.S.	4 *11-in.*, 10 *5·9-in.*, 4 *3·5-in.* A.A., 23 M.	..	18	1771 / 197	727
b. .	Schleswig-Holstein †						Germania														

AIRCRAFT CARRIERS.

Class.	NAME.	Normal Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Belt.	Armour. Deck.	Armour. Side above Belt.	Armour. Bulkhead.	Armour. Gun Position. Heavy Guns.	Armour. Gun Position. Second-ary.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Coal. / Oil.	Complement.
A. C.	Graf Zeppelin .	19,250	820 3	88 6	18 4		Deutsche Werke	1938									16 *5·9-in.*, 10 *4·1-in.*, H.A. 22 smaller, 40 aircraft		about 32		
A. C.	"B" .						Germania Werft	Bldg.													

* Officially rated as "Armoured Ships."

† Reconstructed 1925–30. Classified as schoolships.

‡ Consists of eight double acting two stroke M.A.N. Diesels.

GERMANY.—Cruisers.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)		Beam. (Extreme.)		Draught.		Horse-Power. Type of Machinery and Boilers.	Where Built.	Maker of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour.		Armament.		Speed.	Fuel. Coal. / Oil.	Complement.
															Belt.	Gun Position.	Guns.	Torpedo Tubes.			
		tons.	ft.	ins.	ft.	ins.	ft.	ins.						£	in.	in.			knots.	tons.	
cr.	Admiral Hipper .	10,000	639 W. L.	9	69	11	15	5	(G.)	Blohm and Voss	..	1937	1939	..	..	..	..	..	32	..	..
cr.	Prinz Eugen	10,000	654 W. L.	6	71	3	15	1	(G.)	Germania Werft	..	1938	Bldg.	..	..	..	8 *8-in.*, 12 *4·1-in.* A.A., 12 *1·45-in.* A.A.; 3 aircraft, 1 catapult	12 *21-in.*	32	..	..
cr.	Seydlitz .									Deschimag		1938		..	..	..		..	32	..	..
	ex-Lutzow §									Deschimag		Bldg.									
cr.	M, N, O and P	7000	..		..		..		..	..	..	Bldg.	..	..	..	..	8 *5·9-in.*	..	..	..	..
l.c.	Leipzig .	..	581	0	..		..		72,000† [geared turbines 60,000, Diesels 12,000]	Wilhelmshaven	Kiel	1929	1931	2,050,000	3–4	..	9 *5·9-in.*, 8 *3·5-in.* A.A., 8 *1·5-in.* A.A.; 1 catapult, 2 aircraft	4 triple *21-in.* a.w.	32	— 1500 (including Diesel oil)	656
		6000			53	5	15	7													
l.c.	Nürnberg .	..	557 W. L.	9	..		..			Kiel	Kiel	1934	1935	..	..	..		..	..		..
l.c.	Köln . . .	6000	570	10	49	10	17	8	65,000‡	Wilhelmshaven	Kiel	1928	1930	1,785,000	3–4	..	9 *5·9-in.*, 4 *3·5-in.* A.A., 1 catapult. 2 aircraft	4 triple *21-in.* a.w.	32	— 1200	592
l.c.	Emden * . .	5400	510	2	46	11	17	4	46,500 (G.)	Wilhelmshaven	Wilhelmshaven	1925	1925	..	3	..	8 *5·9-in.*, 3 *3·5-in.* A.A., 4 M.	2 twin *19·7-in.* a.w.	29	— 1260	630

* Training Ship.

† Three propeller shafts, of which the centre shaft is Diesel-driven and the outers turbine-driven. Diesels used for cruising or combined with the turbines to give full speed.

§ To be renamed.

‡ Parsons geared turbines with Diesels for cruising.

GERMANY.—Miscellaneous Craft.

Escort Vessels.—F 1, 2, 4, 5, 7, 8, 9, 10 (1936), 600 tons, 240 feet, 28 knots, 2 4·1-in. 4 1-pr., complement 103.

Gunnery Training Ships.—Drache (1908), 790 tons, 15 knots, 4 4·1-in.; Fuchs (1919), 525 tons, 16 knots, 2 3·4-in.; Bremse (Wilhelmshaven, 1932), 1,250 tons, 339½ feet long, 31 ft. 2 in. beam, 25,000 H.P. (Diesel), 27 knots, 4 4·1-in. guns, complement 162; Brummer (1936), 2,410 tons, 20 knots 4 4-in. guns; Delphin; Mars; Eduard Jungman.

Fishery Protection Vessels.—Weser and Elbe (Wilhelmshaven, 1931), 590 tons, 1600 H.P. (Diesel), 15 knots, 1 3·5 in. gun.

Experimental Vessels.—Pelican and Nautilus (500 tons, 17 knots); Strahl, 1643 tons, 10 knots; Stortebeker, 525 tons, 16 knots, 1 4·1 in. gun.

Motor Torpedo Boats.—S 6 (1932), 46 tons, 2,400 B.H.P., 31-32 knots, 1 m.g. A.A., 2 19·7-in. T.T.; S 7—17 (1934-38), and S 18—25 (building), 70 tons, 1 m.g. A.A., 2 19·7-in. T.T.; S 26—40.

Patrol Vessels.—UZ (S) 18, UZ 32, 33, 60 tons, 14 knots.

Tenders.—Hecht, Gazelle, Frauenlob, 525 tons, 16 knots. Nordsee, 830 tons, 12 knots; Taucher, 202 tons, 6·6 knots; Hai, Konigen Luise, 600 tons, 28 knots, 2 4·1 in.; Paul Beneke, 460 tons, 13 knots.

Sailing Training Ships.—Gorch Fock (Hamburg, 1933); Three-masted barque, 239 feet in length, 1,500 tons, 500 H.P. auxiliary motor giving 8 knots; Horst Wessel (1936) and Leo Schlageter (1938), 1,634 tons, 295 ft. 3 in. in length, 35 ft. 4 in. beam, 15 ft. 9 in. draught, 750 H.P., auxiliary motor giving 10 knots, complement 289.

Motor Minesweepers.—R 1—16 (1933-4), 85 ft., 44 tons, 700 H.P., 17½ knots, 1 1-pr. gun; R 17—34 (1935–1938), R 34—40 (1939), 90 tons. Mining and Barrage vessels MT 1 and 2, 550 tons, 10 knots; 8 small craft (1906–15), 70 tons, 9 knots; I—IV (1936), 120 tons.

Target Ships.—Zähringen (ex-battleship), 11,800 tons, 13 knots; Hessen. Wireless controlled.

Target Tugs and Control Ships.—Pfeil, Komet, and Blitz, 650 tons. 30 knots *ex* T.B.'s. Blitz is control ship for Zähringen.

Depot Ships.—Tsingtau (1934), 1 970 tons, 17½ knots, 2 3·5-in., 4 m.g. Saar (1934), 2,710 tons, 16 knots, 3 4·1-in., 4 m.g. Weichsel (1923), 3,950 tons, 10½ knots. Donau, 10 knots. Nettelbeck (1919), 550 tons, 14 knots, 1 4-in., 2 m.g. Two in number building.

Torpedo Recovery Vessel.—Orkan (1916), 470 tons, 10 knots.

Surveying Vessels.—Meteor (1924), 1150 tons, 14 knots, one 3·4-in.

Minesweepers.—17 in number (1917-1919), 475-525 tons, 1,800 H.P., 16 knots, 1 4·1-in. gun. M 1—24, 600 tons, 17 knots, 2 4·1-in. guns, 1 1-pr.; M 25—36, building.

Oilers.—Samland, 10,111 tons; Brosen, 2,498 tons, 8 knots; Wollin, 3,429 tons, 9½ knots; Franken.

M.T.B. Depot Ship.—Tanga.

U-Boat Tenders—Memel, 998 tons, 13 knots; Mosel, 796 tons, 9 knots; Acheron, Jagd, 525 tons, 16 knots; Warnow; Lech, Iser, 3,850 tons, 13 knots.

GREECE.

Class.	NAME,	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Coal. / Oil.	Complement.
															Gun Position.						
											Belt.	Deck.	Side above Belt.	Bulkhead.	Heavy Guns.	Second-ary.	Guns.	Torpedo Tubes.			
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
cr.	**Giorgios Averoff** *	9301	462	69	24¾	19,000 (21,500 *t*) B.	Leghorn (Orlando)	1910	1911	1,100,000	8–3½ K.S.	1¾	7	7	8–6½	7	4 *9·2-in.*, 8 *7·5-in.*, 16 *3-in.*, 4 *3-pr.*, 2 *3-in.* A.A., 2 M.	3 sub.) *18-in.*	22½ (24 *t.*) †	1500 —	620

* Retubed and refitted 1932. † Probable speed 15 knots.

Training Ship.—Ares (1929), 1,870 tons, 11 knots, four 3-in. guns.

Repair Ship.—Hephestos (1920), 4,519 tons gross, 11½ knots, four 4-in. A.A.

M.T.B's., T1 and T2, Thornycroft type, 55 ft., 37 knots, two Lewis guns 2 T.T., 4 built at Venice, for Customs Service T3 and T4, 66 ft., 43 knots, 32 tons, 2 T.T., building.

Despatch Vessels and Minelayers.—Korgialenios, 380 tons, 13 knots, 50 mines; Tenedos, 450 tons, 13 knots, 40 mines.

Minesweepers.—Nestos, Aliakmon, Axios, Strymon.

Coast Defence Vessels.—Lemnos (*ex*-U.S.N. Idaho) and Kilkis (*ex*-U.S.N. Mississippi) (1908).

ITALY.—Battleships.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)		Beam.		Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel. Coal. Oil.	Complement.
													Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position. Heavy Guns.	Gun Position. Second-ary.	Guns.	Torpedo Tubes.			
		tons.	ft.	ins.	ft.	ins.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	Roma	35,000	774	0	106	6	28	130,000	Trieste	1940	..	..	10	..	..	..	..	..	9 *15-in.*, 12 *6-in.*, 12 *3·5-in.*, 40 A.A. M.G., 2 catapults, 3 aircraft	..	30		1600
b.	Impero								Genoa (Ansaldo)	1939													
b.	Littorio	35,000	774	0	106	6	28	130,000 (G.T.)	Genea (Ansaldo)	1937	1940	..	10	..	..	..	..	..	9 *15-in.*, 12 *6-in.*, 12 *3·5-in.* A.A., 40 A.A. M.G., 2 catapults, 3 aircraft	..	30	..	1600
b.	Vittorio Veneto								Trieste														
b.	Andrea Doria†	..	..		..		..	34,000 P.T. Y.	Spezia	1913	1916	..	10–4 K.S.	1¾	6 K.S.	..	9½ K.S.	6 K.S.	10 *12·5-in.*, 12 *5·3-in.*, 10 *3·5-in.*, 39 A.A. M.G., 1 catapult, 1 aircraft	..	27	1200 800	1074
b.	Caio Duilio†							31,000 P.T. Y.	Castellammare	1913	1915												
b.	Conte di Cavour†	23,622	611	6	92	0	29	..	Spezia	1911	1915	..	10–4½ K.S.	1¾	6 K.S.	..	9½ K.S.	5 K.S.	10 *12·6-in.*, 12 *4·7-in.*, 8 *3·9-in.* A.A., 36 A.A. M.G., 2 catapults, 4 aircraft	..	27	2000	1200
b.	Giulio Cesare†	..	..		..		..	..	Genoa (Ansaldo)	1011	1914	..	10–4½ K.S.	1¾	6 K.S.	..	9½ K.S.	5					

† Reconstructed 1940.   † Reconstructed 1937.

ITALY.—Cruisers, &c.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Side. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Fuel. Coal. / Oil.	Complement.
		tons.	ft. ins.	ft. ins.	ft.					£	in.	in.			knots.	tons.	
Improved Condottieri Class	Luigi di Savoia Duca degli Abruzzi Giuseppe Garibaldi	7874	613 9	61 0	17	100,000 (G.)	Odero-Terni, Orlando Spezia Cantieri Riuniti dell' Adriatico, Trieste	1935	1936	..	Abt. 6	..	10 *6-in.*, 8 *3·9-in.* A.A., 8 *1·5-in.* A.A., 8 M., 4 aircraft, 2 catapults. Fitted for minelaying	6 21″	35	1200	600
Attendolo Class	Eugenio di Savoia Emanuele Filiberto Duca d'Aosta	7283	610 3	57 4	16 4	110,000 tur.	Ansaldo, Genoa Orlando, Leghorn	1935	1936	..	About 4¾	..	8 *6-in.*, 6 *3·9 in.*, 8 *1·5-in* A.A., 8 *·5-in.* M., 1 catapult, 3 aircraft.	6 21″	36½	1200	550
Condottieri Class	Raimondo Montecuccoli Muzio Attendolo	6941	597 9	54 6	14·2	106,000 P.T.	Ansaldo, Genoa Trieste	1934	1935	..	..	..	8 *6-in.*, 6 *3·9-in.* A.A., 8 *1·5-in.* A.A., 8 *·5-in.* M., 2 aircraft, 1 catapult. Fitted for minelaying	4 21″	37	oil	520
Modified Trento Class	Bolzano . .	10,000	646 3	67 8	18 0	150,000 (G.)	Ansaldo, Genoa	1932	1933	..	Abt. 3	..	8 *8-in.*, 12 *3·9-in.* A.A., 8 *1·5-in.* A.A., 8 *·5-in.* M. A.A., 1 catapult, 2 seaplanes	8 21″	36	oil	800
Condottieri Class	Armando Diaz Luigi Cadorna	5008	554 6	50 10	14	95,000 (G.)	Odero-Terni, Spezia Stabilimento Tecnico Triestino, Trieste	1932 1931	1933	..	2 / 2	..	8 *6-in.*, 6 *3·9-in.* A.A., 8 *1·5-in.* A.A., 8 *·5* M., 1 catapult, 2 seaplanes	4 21″ (D.)	37 (39¾ t.)	1000	530
Zara Class	Pola . . Gorizia . . Zara . . Fiume . .	10,000	599 9	67 7	19 6	95,000 (G.)	Odero-Terni, Orlando Stabilimneto Tecnico Triestino, Trieste	1931 1930 1930 1930	1932 1931 1931 1931	..	About 6 / 2	..	8 *8-in.*, 12 *3·9-in.* A.A., 8 *1·5-in.* A.A., 8 *·5-in.* M. A.A., 1 catapult, 2 seaplanes	—	32	2200	800
Condottieri Class	Alberto di Giussano . . Alberico da Barbiano . Giov. delle Bande Nere . .	5069	555 5	50 10	14·2	95,000 (G.)	Ansaldo, Sestri-Ponente Castellamare .	1930	1930 1931 1930	..	..	..	8 *6-in.*, 6 *3·9-in.* A.A., 8 *1·5-in.* A.A., 8 *·5* M., 1 catapult, 2 seaplanes. Fitted for minelaying	4 21″ (D.)	37	1200	500

ITALY.—Cruisers, &c.—*continued.*

Class.	NAME.	Standard Displacement.	Length. (Extreme.)		Beam.		Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.		Armament.		Speed.	Fuel.	Complement.
													Side. / Deck.	Gun Position.	Guns.	Torpedo Tubes.		Coal. / Oil.	
		tons.	ft.	ins.	ft.	ins.	ft.					£	in.	in.			knots.	tons.	
Trento Class	Trento	10,000	645	0	67	9	18	150,000 (G.)	Orlando, Leghorn	1926	1929	..	2¾ / 2	..	8 8-*in.*, 12 *3·9-in.* A.A., 4 *1·57-in.*, 8 *·5-in.* A.A M., 1 catapult, 2 seaplanes	8 a.w. (D.) 21″	35	— / 3000	1000
	Trieste ‡								Stablemento Tecnico, Trieste	1927							36		800
1. c.	Bari (*ex*-German Pillau)	3248	443	11	44	7	13½	28,000 tur.	Danzig (Schichau)	1914	1915	..	3 / 1½–¾	1	8 *5·9-in.*, 3 *3-in.* A.A., 3 M. 120 mines.	—	27·5	984 / 250	372
1. cr.	Taranto (*ex*-German Strassburg)	3184	455	0	42	2	12¼	27,000 P.T. T.S.	Wilhelmshaven	1911	1914	416,340	4–2½ / 2	2	7 *5·9-in.*, 2 *3-in.* A.A., 3 M., 120 mines	—	21	1200 / 130	373
s.c.	Miraglia *	4882	397	0	49	3	17	12,000 P.T.	Spezia	1923	1927	..	..	..	4 *4-in.* A.A., 4 M., 2 catapults, 16 planes	—	21·5	— / 440	300
cr.	Ammiraglio Constanza Ciano	..	..		..		..	..	..	Bldg.	..	..	..	..	..	..	..	..	..
1. cr.	Cornelio Silla	3360	444	3	44	9	13	120,000	Genoa	Bldg.	..	..	..	..	8 *5·3-in.*, 6 *2·5-in.*, 14 M. A.A.. carries mines	8 21″	41		
	Paolo Emilio																		
	Attilio Regolo								Leghorn										
	Scipionie Africano																		
	Caio Mario								Spezia										
Regolo Class	Claudio Tiberio								Ancona										
	Pompeo Magno																		
	Ottaviano Augusto								Palermo										
	Ulpio Traiano								Trigoso										
	Claudio Druso																		
	Vipsanio Agrippa								Naples										
	Giulio Germanico																		

* *Ex*-merchant ship, taken over on the stocks. Aircraft transport.

‡ Fleet Flagship.

Combined Minelayers and Minesweepers.—Fasana, Buccari, Durazzo, and Pelagosa, completed 1926, 531 tons, 10 knots (I.C. machinery), 1 *3-in.* gun, 100 mines; Azio, Legnano, Lepanto, and Ostia, completed 1926-7, 615 tons, 15 knots (recip.), 2 *4-in.*, 1 *3-in.*, 80 mines; Crotone, Viesti, 859 tons, 195 ft., 1,600 H.P., 14 knots, 2 *4-in.* guns, 70 mines.

Minelayers.—Laurana, Rovigno, and Albona (*ex*-Austrian), 112 tons, 11 knots, 1 *3-in.*; fourteen converted merchant vessels, 12–15 knots.

Minesweepers.—39 in number, 150 tons, 14 knots, 1 *3-in.* gun; G. Biglieri, G. Berta, P. Matteucci, M. Sonzini (1924), 138 ft., 620 tons, 9 knots, 2 *3-in.*

Oil Transports.—Tarvisio, 10,910 tons, 11 knots, 4 *4·7-in.* 2 *3-in.*; Stige, 1,342 tons, 8 knots, 1 *4·7-in.*, 1 *3-in.*; Urano, 10,550 tons, 11 knots, 2 *4·7-in.*, 2 *3-in.*; Brennero, 9,800 tons, 11 knots, 4 *4·7-in.*, 2 *3-in.* (fitted with water protection); Prometeo, 1,080 tons, 11 knots, 2 *3-in.*; Nettuno, Giove, 9,555 tons, 14 knots, 3 *4·7-in.*, 2 *3-in.*; Niobe, 3,160 tons, 11 knots, 3 *3-in.*; Cocito, Lete, 1,162 tons, 10 knots, 3 *3-in.*, Cerere, 2,530 tons, 10 knots, 1 *4·7-in.*, 2 *3-in.*; Bronte, 8,240 tons, 14½ knots, 2 *3-in.*; Marte, 10 knots, 2 *3-in.*

River Gunboat.—E. Carlotto (1918), 180 tons, 14 knots, 2 *3-in.* A.A. guns.

Escort Gunboats.—A. Bafile, E. Giovannini (1922), 182 tons, 23 knots, 2 *4-in.* guns, 2 T.T.; Orsa, Orione, Procione, Pegaso (1938), 293 ft., 855 tons, 28 knots, 2 *3·9-in.*, 8 M.G.

Surveying Vessels.—Ammiraglio Magnaghi (1914), 1506 tons, 14 knots, 4 *3-in.*; Cariddi (1916), 330 tons, 10 knots, 1 *3-in.* gun; Cherso, 3,988 tons, 10½ knots, 4 *4·7-in.* guns.

Patrol Vessels.—Cirene (1912), 384 tons, 10 knots, 2 *3-in.*; Corsini (1912), 290 tons, 12 knots, 2 *3-in.*; Rimini (1912), 319 tons, 9½ knots, 1 *3-in.* gun; Gallipoli (1911), 310 tons, 10½ knots. 2 *3-in.* guns.; Otranto (1911), 290 tons, 10 knots, 2 *3-in.* guns; Alula (1912), 308 tons, 13 knots, 1 *3-in.* gun; Valoroso (1913), 340 tons, 10 knots, 1 *3-in.*; Palmaiola (1902), 472 tons, 8½ knots, 1 *3-in.*; Aurora, 935 tons, 14½ knots, 2 *2¼-in.*; Illiria.

Training Ships.—Cristoforo Colombo (Castellamare, 1928), 2,787 tons, 10 knots (Diesel-electric) 4 *3-in.* guns, 2 A.A. M.G.; Amerigo Vespucci (Castellamare, 1931), 3,543 tons, 1,800 H.P. (Diesel-electric), 11 knots, 4 *3-in.* A.A., 2 A.A. M.G.

Submarine Depôt Ships (Sloops).—Volta and Pacinotti (1924), 2,730 tons, 19 knots, 4 *3-in.* A.A.

Cable Ships.—Citta di Milano (5,300 tons), 10 knots; Giasone, 1192 tons, 250 ft., 15 knots.

Tugs.—87 in number, 100–300 tons, 8–13 knots, some fitted with 1 *3-in.* gun.

Water Carriers.—Dalmazia, Istria, 2,900 tons, 10 knots, 1 *4·7-in.*, 1 *3-in.*; Flegetonte, 1,162 tons, 9 knots, 3 *3-in.* A.A.; Verde, Pagano, 1,432 tons, 9 knots, 1 *4·7-in.*, 1 *3-in* A.A.; Ticino, 2,588 tons, 9½ knots, 2 *3-in.*; Isonzo, Po, Volturno, 11½ knots, 2 *4-in.*, 4 m.g.; Scrivia, Tirso, 9½ knots, 4 m.g.; Mingo, Bormida, 645 tons, 9 knots; Sesia, Garigliano, 1,050 tons, 9½ knots, 4 M.G.

Motor Torpedo Boats.—M.A.S. 96, 188, 204, 206, 210, 212, 213, 216, 222, 228, 230 (1916–1919), 12 tons, 24–26 knots, 2 *18-in.* T.T.; M.A.S. 418, 422 (1922), 21 tons, 28 knots, 2 *18-in.* T.T.; M.A.S. 423–437, 15 tons, 45 knots, 2 *18-in.* T.T., 5 depth charges; M.A.S. 438–441, 35½ tons; M.A.S. 501–516, 47 knots, 2 *18-in.* T.T., 6 depth charges; M.A.S. 517–551, 20 tons, 47 knots, 1 M.G., 2 *18-in.* T.T.

Transport Ships.—Lussin, 3,988 tons, 10½ knots, 4 *4·7-in.*, 2 *3-in.*; Tripoli, 2,460 tons, 8½ knots; Panigaglia, Vallelunga, Buffoluto (Ammunition transport ships), 916 tons, 11 knots, 2 *3·9-in.*; Enrichetta, 8,360 tons, 9½ knots.

Lighthouse Tenders.—Lante, 295 tons, 12 knots, 2 *3-in.*; Bianco, 258 tons, 11½ knots, 2 *3-in.*; Lutti, 266 tons, 12 knots, 1 *3-in.*; Levanzo, 226 tons, 11 knots, 2 *3-in.*; Scilla, 350 tons, 9 knots, 1 *3-in.*; Lido, 226 tons, 12 knots, 1 *3-in.*

Monitors.—Faa di Bruno (1917), 2,796 tons, 3·3 knots, 2 *15-in.*, 6 *3-in.*; Monte Grappa, Montello (1919), 605 tons, 7 knots, 1 *12-in.*, 2 *3-in.*; Monte Cengio, Monte Noveano (1919), 502 tons, 7 knots, 1 *12-in.*, 4 *3-in.*

Target Ship.—San Marco, Old Cruiser.

Escort Vessel.—Eritrea, 2,172 tons, 20 knots, 4 *4·7-in.* guns, fitted for minelaying.

Repair Ship.—Quarnaro (1927), 7,185 tons, 11½ knots, 3 *4-in.*

Motor Vedettes.—Vigilante, Vedetta (1938), 85½ ft., 70 tons, 400 H.P. (D.) 12·3 knots, 1 *3-in.*

4 Hospital Ships.

JAPAN.—Battleships.

Type.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.				Gun Position.		Armament.		Speed.	Fuel.	Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Heavy Guns.	Second-ary.	Guns.	Torpedo Tubes.		Coal. / Oil.	
		tons.	ft. ins.	ft. ins.	ft. ins.						in.	in.	in.	in.	in.	in.			knots.	tons.	
Fuso Class	**Fuso** §	29,330	673 0	94 0	28 6	40,000 B.C.T.	Kure	1914	1915	..	12 K.S.	3	8 K.S.	..	12 K.S.	6 K.S.	12 *14-in.*, 16 *6-in.*, 8 *5-in.* A.A., 4 M., 4 L., 3 seaplanes, 1 catapult	..	22·5	4500	1300
	Yamashiro §						Yokosuka	1915	1917												
Ise Class	**Hyuga** *	29,990	683 0	94 0	28 8	45,000 tur.	Nagasaki (Mitsubishi)	1917	1918	..	12 K.S.	3 K.S.	8 K.S.	..	12 K.S.	6 K.S.	12 *14-in.*, 18 *5·5-in.*, 8 *5-in.* A.A., 8 M. H.A., 3 seaplanes, 1 catapult	..	23	4500	1360
	Ise *					45,000 B.C. tur.	Kobe (Kawasaki)	1916	1917												
Kongo Class	**Haruna** §	29,330	704 0	95 0	27 6	64,000 P.T.	Kobe (Kawasaki)	1913	1915	..	8–3 K.S.	2¾	6	..	10 K.S.	6 K.S.	8 *14-in.*, 16 *6-in.*, 8 *5-in.* A.A., 4 M., 4 L. 3 seaplanes, 1 catapult	4 (sub.) *21-in.*	26	— / 4000	1250
	Kirishima ‡*						Nagasaki (Mitsubishi)	1913	1915	..											
	Kongo ‡*						Barrow	1912	1913	2,500,000											
	Hiyei †						Yokosuka	1912	1914	..											
Nagato Class	**Mutsu** *	32,720	700 0	95 0	30 0	80,000 (G.)	Yokosuka	1920	1921	..	12–9 K.S.	3½	..	..	14	..	8 *16-in.*, 20 *5·5-in.*, 8 *5-in.* A.A., 8 A.A. M.G., 3 seaplanes, 1 catapult	..	24	3400	1304
	Nagato *						Kure	1919	1920												1367 (as fleet flag-ship)

New Construction. The number of battleships building in Japan is not known, but probably four or five of 35,500–40,000 tons with 9 16-in. guns, 30 knots speed. Nissin launched November 1939 and Takumatu April 1940.

Armoured Cruisers now rated as Coast-defence Ships (1st class), completed 1899–1904: Kasuga, 7080 tons, 20 knots, 1 10-in., 2 8-in., 14 *6-in.*; Yakumo, 9010 tons, 16 knots, 4 8-in., 12 6-in., 5 3-in.; Adzuma, 8640 tons, 16 knots, 4 8-in., 12 6-in., 5 3-in.; Idzumo and Iwate, 9180 tons, Idzumo, 20¾ knots, Iwate, 16 knots, 4 8-in., 14 6-in., 5 3-in.; Asama, 9240 tons, 21½ knots, 4 8-in., 12 6-in., 5 3-in., used as a training ship.

* Reconstructed 1936. † Reconstructed 1939.

§ Modernised 1934.

‡ Modernised 1928–1931, including fitting of bulges and new foremast, and conversion to oil burning.

JAPAN.—Aircraft Carriers.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.‡	Armour. Side / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Fuel. Coal. / Oil.	Complement.
		tons.	ft.	ft.	ft. ins.					£	in.	in.			knots.	tons.	
A.C.	Akagi *	26,900	763 b.p.	92	21 2	131,200 (G.)	Kure	1925	1927	..	..	..	10 *8-in.*, 12 *4·7-in.* A.A., capacity for 50 aircraft. Carries about 30 aircraft	—	28·5	3900	1500
A.C.	Hosho (Hosyo) †	7470	510 b.p.	48 / 62	15 0	30,000 (G.)	Tsurumi (Asano)	1921	1922	..	..	..	4 *5·5-in.*, 2 *3-in.* A.A., 20 aircraft	—	25	— / 2700	550
S.C.	Kamoi §	17,000	495	67	28 0	8,000 turbines and electric drive	New York S.B. Co.	1922	1922 (converted 1933)	..	..	..	2 *5·5-in.*, 2 *3-in.* A.A., 15 seaplanes	—	15	4000	..
A.C.	Kaga ‡	26,900	715 b.p.	102½	22 1	91,000 (G.)	Kobe (Kawasaki)	1921	1928	..	..	..	10 *8-in.*, 16 *4·7-in.* A.A., 20 A.A. M.G., capacity for 60 aircraft. Carries about 30 aircraft	—	23	— / 5300	..
S.C.	Notoro §	14,050	455 b.p.	58	26 6	5,850 recip.	Kobe (Kawasaki)	1920	1920	..	..	..	2 *4·7-in.*, 2 *3-in.* A.A., 16 seaplanes	—	12	— / 1000	..
A.C.	Ryujo †	7100	548	60′ 8″	15 0	40,000 (G.)	Yokohama	1931	1933	..	..	..	12 *5·1-in.*, A.A., 30 aircraft	—	25	oil	600
A.C.	Soryu †	10,050	688	68′ 4″	16 6	60,000 (G.)	Kure	1935	1937	..	..	..	12 *5-in.*, A.A., 40 aircraft	—	30	..	..
A.C.	Hiryu †						Yokosuka	1937	1938								
A.C.	Koryu †							1938	1939								
S.C.	Chitose (Titose)	9,000	577½	61′ 8″	19 0	15,000	Kure	1936	1938	..	..	..	6 *5-in.* A.A., 12 A.A. M.G.	—	20	..	..
S.C.	Chioda (Tiyoda)					tur.& t.b.	Kure	1937	1938						20		
S.C.	Mizuo (Miduho)					9,000	Kobe	1938	1939						17		
S.C.	Kamikawa	..	..	..	..	..	Kobe	..	1937	..	..	..	2 *3-in.*, 10 seaplanes	—	16	..	..
A.C.	Shokaku	..	..	..	..	..	Yokosuka	1939	Bldg.	..	..	..	—	—	..	..	..
A.C.	Zuikaku	..	..	..	..	..	Yokosuka	1939	Bldg.	..	..	..	—	—	..	..	..

* Designed as a battle cruiser. † Fitted with gyro-stabiliser. ‡ Designed as a battleship. § Converted from oilers. Seaplane carriers. Other vessels carry landplanes.

JAPAN.—Cruisers.

Class.	NAME.	Standard Displacement.	Length. (Extreme)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost	Armour. Side. / Decks.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Fuel. Coal. / Oil.	Complement.
		tons.	ft.	ft.						£	in.	in.			knots.	tons.	
Mogami Class	Tone	8500	614 3 w.l.	63	14′7″	90,000	Nagasaki	1937	1938	..	2 / 2	..	12 *6·1-in*, 8 *5-in.* A.A., 4 *3-in.*, 6 M.G., 4 aircraft, 2 catapults	12 21-in, a.w. (T.)	33	..	..
	Tikuma	8450						1938	1939								
	Mogami	8500	640	59¾	14′9″	90,000 (G.)	Kure	1934	1935	2,500,000 estimated	2 / 2	..	15 *6·1-in.*, 8 *5-in.* A.A., 4 *3-in.*, 12 M.G., 2 catapults, 4 aircraft	12 21-in. a.w. (T.)	33	..	..
	Mikuma						Nagasaki	1934	1935								
	Suzuya						Yokosuka	1934	1936								
	Kumano						Kawasaki	1936	1937								
Takao Class	Chokai	9850	650	62½	16½	100,000 (G.)	Nagasaki	1931	1932	..	3–4 / 3–5	..	10 *8-in.*, 4 *4·7-in.* A.A., 8 A.A. M.G., 2 catapults, 4 seaplanes	8 21-in. a.w. (D.)	33	2000	692
	Maya						Kobe	1930									
	Atago						Kure	1930	1932								
	Takao						Yokosuka										
Nachi Class	Ashigara	10,000	640	62½	16½	100,000 (G.)	Kobe	1928	1929	..	3–4 / 3·5	..	10 *8-in.*, 8 *4·7-in.* A.A., 2 M., 2 catapults, 4 seaplanes	12 21-in. a.w. (T.)	33	— / 2500	750
	Haguro						Nagasaki		1929								
	Myoko						Yokosuka	1927	1929								
	Nachi						Kure		1928								
Furutaka Class	Kinugasa	7100	595	50¾	14¾	95,000 (G.)	Kawasaki, Kobe	1926	1927	..	..	..	6 *8-in.*, 4 *4·7-in.* A.A., 10 M., 2 planes, 1 catapult	12 21-in. a.w.	33	400 / 1400	604
	Aoba						Nagasaki	1926	1927								
	Furutaka						"	1925	1926								
	Kako						Kawasaki, Kobe	1925	1926								
Natori Class	Abukuma	5170	535	47½	15⅝	70,000 (G.)	Uraga	1923	1925	.	2 / —	..	7 *5·5-in.*, 2 *3-in.* A.A., 2 M., 1 seaplane, 1 catapult, 80 mines	8 21-in. a.w. (D.)	33·0	300 / 1260	450
	Isudsu						Uraga	1921	1923								
	Nagara						Sasebo	1922	1922								
	Natori						Nagasaki (Mitsubishi)	1922	1922								
	Yura						Sasebo	1922	1923								
	Kinu						Kawasaki	1922	1922								

Sendai Class	Jintsu	5195	535	47¼	15¾	90,000 (G.)	Kawasaki	1923	1925	..	2/—	..	7 5·5-*in*., 2 3-*in*. A.A., 5 M., 1 seaplane, 1 catapult, 80 mines	8 21-in.	33·0	300/1260	450
	Naka						Yokohama	1925	1925								
	Sendai						Nagasaki	1923	1924								
Kuma Class	Kiso	5100	535	47¼	15¾	70,000 (G.)	Nagasaki	1920	1921	..	2/—	..	7 5·5-*in*., 2 3-*in*. A.A., 2 M., 1 seaplane, 80 mines	8 21-in. a.w. (D.)	33·0	300/1260	439
	Kitakami						Sasebo	1920	1921								
	Kuma						Sasebo	1919	1920								
	Oi						Kobe	1920	1921								
	Tama						Nagasaki (Mitsubishi)	1920	1921								
Tenryu Class	Tatsuta	3230	468	40¾	13	51,000 (G.)	Sasebo	1918	1919	..	..	..	4 5·5-*in*., 1 3-*in*. A.A., 2 M., fitted for minelaying, 1 seaplane	6 18-in. (T.)	31	—/900	332
	Tenryu						Yokosuka										
—	Yubari	2890	465	39½	11¾	57,000 (G.)	Sasebo	1923	1923	..	..	..	6 5·5-*in*., 1 3-*in*. A.A., 2 M. 34 mines	4 21-in. a.w. (D.)	33	—/820	328

MINELAYERS.—Katsuriki (1917), 1540 tons, 13 knots, 3 3-in., 150 mines; Itsukushima (Uraga, 1929), 1970 tons, 16 knots, 3000 H.P. (Diesel), 3 5·5-in., 2 3-in. A.A., 250 mines; Tokiwa, 9240 tons, 21 knots, 2 8-in., 8 6-in., 3 3-in., and 19 smaller vessels, 300—400 tons, about 12 knots, 2 3-in., 45 mines. Okinoshima (1936), 4400 tons, 9000 H.P., 20 knots, 4 5·5-in., 4 M.G.; Sirakami, Aotaka, Hatsutaka, Sokuten (1939), 720 tons, 20 knots, 2 4·7-in.

MINESWEEPERS.—Nos. 1, 2, 3 (1923), No. 4 (1925), and Nos. 5, 6 (1929), 615 tons, 20 knots, 2 4·7-in., 1 3-in. A.A. Nos. 13—14 (1933), and Nos. 15—18 (1935–36), 492 tons, 20 knots, 2 4·7-in. guns.

GUNBOATS.—Saga (1912), 685 tons, 15 knots, 1 4·7 in., 3 3-in. A.A.; Ataka (1922), 725 tons, 16 knots, 2 4·7-in., 2 3-in. A.A.; Yodo, 1320 tons, 22 knots, 2 3-in.

RIVER GUNBOATS.—Futami (1930), Atami (1929), 170 tons, 16 knots, 1 3-in. gun; Katata, Hira, Hodzu, Seta (1923), 305 tons, 16 knots, 2 3-in. A.A.; Toba (1911), 215 tons, 15 knots, 2 3-in.; Kotaka (1930), 50 tons, 15 knots, 5 M.G.; Fushimi (1939), 320 tons.

SUBMARINE DEPÔT SHIPS.—Taigei (1934), 10,000 tons, 689 feet, 13,000 H.P., 20 knots, 4 5-in. A.A.; 3 seaplanes, now used as seaplane carrier; Chogei (1924), Jingei (1923), 5160 tons, 16 knots, 4 5·5-in., 2 3-in. A.A, 1 seaplane; Komahashi (1914), 1125 tons, 13·9 knots, 2 3-in., 1 3-in. A.A.; Karasaki (1896), 9750 tons, 13 knots, 1 3-in., 3-in. A.A.

ANTI-SUBMARINE NETLAYERS.—Yayeyama (1932), 1135 tons, 4800 H.P. (reciprocating machinery), 20 knots, 2 4·7-in. A.A.; Shirataka (1929), 1345 tons, 16 knots, three 4·7 in. A.A. guns. Tsubame and Kamome (1929), 450 tons, 19 knots, 1 3-in. Natsushima, Sarusima and Nasami, 443 tons, 19 knots, 2 3-in. guns.

SUBMARINE CHASERS.—Nos. 1, 2, 300 tons, 24 knots, 4 M.G.; Nos. 6–13, 270 tons, 20 knots, 4 M.G.; 51–53, 170 tons, 23 knots, 4 M.G.

REPAIR SHIP AND SUBMARINE SALVAGE SHIP.—Asahi (ex-Battleship, 12,000 tons), 18 knots. Repair Ship—Akashi (1939), 9000 tons, 19 knots, 4 5-in. A.A. 4 Salvage Ships. 2 Cable Ships. Transports and other auxiliaries. ICEBREAKER.—Odomari (1921), 2330 tons, 13 knots, 1 3-in. TARGET SHIP.—Settsu, 16,130 tons.

ARMED OILERS.—Takasaki and Tsurugisaki (1937), 12,000 tons, 19 knots, 4 5-in. guns. Naruto, Hayayomo, Ondo, Iro, Tsurumi, Shiriya, Sata, Erimo (1920–23), 14,050 tons, 12 knots, 2 5·5-in., 2 3-in. A.A. Sunosaki (1918), 8800 tons, 14 knots, 2 4·7 in., 2 3-in. A.A. SURVEYING SHIP.—Koshu, 2080 tons, 10·3 knots, 2 3-in.

TRAINING SHIPS.—Shikishima, 11,275 tons; Fuji, 9179 tons. Katori, Kashima (1940), 6000 tons, 18 knots.

TRANSPORTS.—Mamiya, 15,820 tons, 14 knots, 2 5·5-in., 2 3-in. A.A.; Muroto, Noshima, 8215 tons, 12½ knots, 2 4·7-in.

NETHERLANDS.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel.		Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position. Heavy Guns.	Gun Position. Second-ary.	Guns.	Torpedo Tubes.		Coal.	Oil.	
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots	tons.		
cr.	De Ruyter	6450	560	51	16	66,000 P.T. Y.	Rotterdam (Wilton-Fijenoord)	1935	1936	..	2	1¼	..	..	..	..	7 *5·9-in.*, 10 *1·5-in.* A.A., 8 *·5-in.* A.A.; 8 M., 1 catapult, 2 seaplanes	—	32		1000	435
cr.	Java	6670	509½	52½	18	72,000 tur.	Flushing	1921	1925	..	3	1	1	..	4	..	10 *5·9-in.*, 6 *1·5-in.*, 6 *·5-in.*, A.A., 8 M., 40 mines, 2 seaplanes	—	31	—	1070	525
,,	Sumatra						Amsterdam	1920	1926													
a.g.b.	Brinio	530	172¼	28	9¼	1500 Diesel	Amsterdam	1912	1914	..	2 K.S.	¾	..	..	..	..	4 *4·1-in.*, 2 M.	—	14	34	—	63
,,	Gruno							1913	1915													
c.d.s.	Hertog Hendrik *	4371	317	50	19	6282 *t.* Y.	Amsterdam	1902	1904	347,500	6 H.N.S.	2	..	..	10 H.N.S.	3 H.S.	1 *9·4-in.*, 4 *5·9-in.*, 2 *3-in.*, 6 *1-pr.*, 2 M.	—	16·5 *t*	710	—	302
,,	Soerabaja *	5644	333	56	20¼	8000	Amsterdam	1909	1910	..	6–4	2	..	..	10	4	2 *11-in.*, 2 *3-in.*, 8 *1·5-in.* 2 M.	—	16	880		350
r.	Gelderland	3512	310	48½	17	9750 Recip. Y.	Rotterdam	1898	1900	..	4	2	..	..	..	..	8 *4·7-in.*, 4 *3-in.*, 3 *1·5-in.*, 6 M.	—	18	900	—	325
,,	Tromp	3350	433	40¾	15	56,000	Amsterdam	1937	1938	..	2	1	..	..	..	..	6 *5·9-in.*, 4 *1·5-in.* A.A., 4 *·5-in.*, 2 seaplanes	6 21-in.	32½	—	860	206
,,	Heemskerck							1939	Bldg.													

* Training ships.

GUNBOATS.—(Indian Military Marine): Soemba, Flores (1926–7), 1457 tons, 15 knots, three 5·9 in., one 3-in. A.A., 2 M., three building.

MINELAYERS.—Nautilus (1930), 800 tons, 14 knots, two 3-in., three 1·5 in., 2 M., 40 mines; Douwe Aukes & Van Meerlant (1922), 687 tons, 13 knots, three 3-in. A.A., 2 M., 130 mines; Medusa (1911), 593 tons, 11·5 knots, three 3-in., 1 M., 65 mines; five old vessels, 240 tons, 7 knots, two 1·5-in. Willen Van Der Zaan, 1350 tons, 15 knots, 2 4·7-in., 4 1·5-in., 4 M., 120 mines; Krakatau (1924), 982 tons, 16 knots, two 3-in. A.A., 4 M., 150 mines, 1 catapult, and 1 seaplane; Pro Patria (1923), 534 tons, 10 knots, one 3-in. A.A., 3 M., 80 mines; Prins Van Oranje and Gouden Leeuw (1932), 1291 tons, 15 knots, two 3-in., two 1·5-in., 2 M., and 1 aircraft; Serdang, 680 tons, 13 knots, 2 1-pr.; Jan Van Brakel (1936), 1350 tons, 15 knots, 2 3-in., 1 1-pr., 4 M.

MINESWEEPERS.—I.–III., 200–235 tons; A, B, C, D (1930), 179 tons; Jan Van Amstel, Abraham van Der Hulst, Jan van Gelder, Pieter Florisz, Abraham Crijnssen, Pieter de Bitter (1937), 525 tons, 15 knots, 1 3-in., 4 M.

SURVEYING VESSELS.—Tydeman (1919), 1160 tons, 10 knots, 1 3-in., 2 1·5 in., 2 M.; Willebrord Snellius (1929), 930 tons, 10½ knots, 1 3-in., 2 1·5-in., 2 M.; Eilerts de Haan (1919), 312 tons, 12 knots; Hydrograf (1911), 260 tons, 9 knots.

SUPPLY SHIP.—Zuiderkruis (1923), 2600 tons, 12½ knots.

SUBMARINE DEPÔT SHIP.—Cornelius Drebbel (1915), 688 tons, 170 H.P. (Diesel), 6 knots, 1 1·5 in.

GUNNERY TRAINING SHIP.—Van Kinsbergen (1939), 1760 tons, 25 knots, 4 4·7-in. guns.

OLD GUNBOATS (1877–9): Hefring, Braga, Tyr and Freyr, 244 tons, 7–8 knots, 1 4·7-in., 2 1-pr., 1 M.

POLICE AND CUSTOMS VESSELS.—Seventeen in No., armed with 2 3-in. guns, 12–20 knots, 600–1000 tons.

MOTOR TORPEDO BOATS.—T.M. 1, 2, 4 (1929) Thornycroft, 12 tons, 37 knots, 4 M., 2 17·7-T.T.; T.M. 3 (1937), 15 tons, 38 knots, 2 M., 4 18-in. T.T.; T.M. 51 (1939), 37 tons, 43 knots, 2 M., 4 18-in. T.T.

NORWAY.

Class.	NAME.	Normal Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel.	Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position.		Guns.	Torpedo Tubes.		Coal. / Oil.	
															Heavy Guns.	Second-ary.					
		tons.	ft.	ft.	ft.					£	in.	in.			in.	in.			knots.	tons.	
c.d.s.	Harald Haarfagre . .	3858	304	48½	17⅜	4500	Elswick	1896	1898	300,000	7 H.S.	2	..	..	8 H.S.	..	2 8 2-*in.*, 6 3-*in.*	3 18-in.	16·5	550 / —	249
„	Tordenskjold*							1897	1899								2 8·2-*in.*, 6 4·7-*in.*, 6 3-*in.*, 2 3-*in.* A.A., 6 M.	2 (sub.) 18-in.			

Fishery Protection Vessels.—Nordkapp (1937), 273 tons, 13·7 knots, 1-1·85-in.; Fridtjof Nansen (1931), 1050 tons, 15 knots, 2000 H.P., two 4-in., two 3-pr.; Heimdal (1892), 660 tons, 12 knots, four 12-pr.

Minelayers.—Glommen and Laugen (1918), 335 tons, 9½ knots, 2 3-in. M., 50 mines; old gunboats, refitted as minelayers: Tyr, Gor, Vidar, Brage, Nor, Vale, and Uller, 230-280 tons, armed with one 4·7-in. and other guns. Olav Trygrason,† minelayer and training ship, built at Horten, 1747 tons, 21⅜ knots, 6000 H.P., 4 4·7-in. and 1 3-in. A.A. guns, and 2 T.T.S. (18-in.), 280 mines.

Minesweeper.—Otra, 360 tons, 13·5 knots, one 1·5 in., 2 M.

* Employed as training ship for Cadets.

† 1500 H.P. Diesels, 4500 H.P. turbines. Max. speed on Diesels, 14 knots.

SOVIET UNION.—Battleships.

Class.	NAME.	Normal Displacement.	Length (Extreme).	Beam.	Draught.	Horse-Power.	Where Built.	Makers of Engines.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel.	Complement.
												Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position. Heavy Guns.	Gun Position. Secondary.	Guns.	Torpedo Tubes.		Coal. / Oil.	
		tons.	ft.	ft.	ft.							in.	in.	in.	in.	in.	in.			knots.	tons	
b.	**Paris Commune** (*ex*-Sevastopol) †	23,000	594	87	27½	42,000 P.T.	Baltic Works	Baltic Works	1911	1915	..	9–5	3	..	..	12–10	6	12 *12-in.*, 16 *4·7 in.*, 10 *3-in.* A.A., 8 M., *and smaller*, 2 seaplanes	4 (sub.) 18-in.	23	2000 / 1000	112
b.	**October Revolution** (*ex*-Gangut)‖	23,000	594	87	27½																	
b.	**Marat** (*ex*-Petroparlovsk) *	23,606	594	87	31																	
b.	**Mikhal Frunze**	23,000	594	87	27½				1911	1915												
b.	**I.**	40,000	800	105					Blg.									9 *16-in.*, 12 *6-in.*		30		
b.	**II.**																					
.	**III.**																					

† Modernised, 1937. ‖ Modernised, 1933. * Modernised, 1931.

Aircraft Carriers.

A.C. Stalin (building), 9000 tons, 30 knots, 22 aircraft.

SOVIET UNION.—Cruisers.

Class.	NAME.	Normal Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power.	Where built.	Date of Launch.	Date of Completion.	Cost.	Armour.		Armament.		Speed.	Fuel.	Complement.
											Belt./Deck.	Gun Position.	Guns.	Torpedo Tubes.		Coal/Oil	
		tons.	ft.	ft	ft.					£	in.	in.			knots.	tons.	
cr.	Avrora (*ex*-S.S.S.R) †	6730	416	55	21	11,600	Petrograd	1900	1903	..	..	..	10 *5·1-in.*, 5 *6-pr.* A.A., 2 M., 125 mines	2	18	964/—	573
m. cr.	Marti	3500	410	..	..	G. Tur.	..	..	1936	..	2	..	4 *5·1-in.*, 3 *3-in.* A.A., 300 mines	..	25	..	..
cr.	Chervonaya-Ukraina (*ex*-Ad. Nakhimov)	7600	520	50⅓	18½	55,000 P.T.(Y.)	Nikolaev	1915	1923	..	3/1	..	15 *5·1-in.*, 4 *3-in.*, 8 *3-in.* A.A., 4 M., 100 mines, 2 flying boats	12 *21-in.*	29½	540/690	600
”	Komintern † (*ex*-Pamyat Merkuriya)	6675	440	54½	20½	19,500	Nikolaev	1903	1907	..	..	..	10 *5·1-in.*, 8 *3-in.* A.A., 1 aircraft	2 (sub.)	23	1190/—	595
”	Krasni Kavkaz (*ex*-Ad. Lazarev)	7600	535	51½	19	60,000	Nikolaev	1916	1930	..	3/1	3	4 *7·1-in.*, 4 *3-in.* A.A., 4 *4-in.* A.A., 4 M., 100 mines, 2 seaplanes	(a.w.)	29½	540/690	650
”	Profintern (*ex*-Svietlana)	7200	520	50⅓	18½	55,000 P.T.(Y.)	Reval	1915	1925	..	3/1	3	15 *5·1-in.*, 4 *4-in.* A.A., 4 *3-in.*, 4 M., 2 aircraft, 100 mines	12 *21-in.*	29½	540/690	630
”	Kirov	7725	613½	58	18	105,000	Leningrad	1936	1937	..	3/2	..	9 *7·1-in.*, 4 *4-in.*, 4 *1·5-in.* A.A., 2 aircraft	6 *21-in.*	34	..	624
”	Maxim Gorki							1937	1939								
”	Ordzhonikidze							1938	Bldg.								
”	Kuibishev							1939	Bldg.								
l. cr.	Tashkent	3000	457¾	43	11½	100,000	Leghorn	1937	1939	..	..	..	6 *5·1-in.*, 6 *1·8-in.* A.A., 6 M.	9 *21-in.*	39	..	..
cr.	Three in Number	..	.	..	..	G. Tur.	..	Bldg.	..	.	..	..	*7·1-in.* guns			..	..

† Training ship.

Gunboats.—Krazni Vostok, Sun Yat Sen, Lenin, Chicherin, (1910), 950 tons, 11 knots, 1 6-in., 1 3-in. Bednota, Krasnoe-Znamya, Rabotchi, Proletarii, Krasni Buryat, Krasni Mongol, Krasni Moryak (1907), 11 knots, 190 tons, 2 4·7-in. Krasni Azerbaidzhan, Lenin (1909), 640 tons, 12 knots, 2 4-in., 2 3-in. Krasni Adzharistan, Krasni Krim, Krasnaya Gruziya, Krasnaya Abkhazia (1906), 1,100 tons, 9 knots, 2 5·1-in., fitted for minelaying. Altvater, Bakinsky Rabotchi, Markin (1905), 710 tons, 25 knots, 3 4-in., 2 M. Krasnaya Zvezda (1906), 1,300 tons. Krasnoe Znamya (1895), 1,500 tons, 5 5-in., 2 3-in.

Minelayers.—25 Oktyabrya (1873), 4,500 tons, 11 knots, 4 3-in., 600 mines. 6 others.

Minesweepers.—Mikula, Iskra, 500 tons, 1 3-in. Zapal, Zmei, Klyuz (1911), 180 tons, 11 knots, 1 3-in. Djalita (1926), 359 tons, 10 knots, 2 3-in. Dorotea (1924), 443 tons, 10 knots, 2 3-in. Udarnick (1917), 185 tons, 10 knots, 1 3-in.; Nos. I–VI (1935), 400 tons, 16 knots, 1 4-in., 1 M.G.

Oilers.—Gornjak (1898), 1,576 tons, 12 knots. Zheleznodorozhnik, 2,000 tons, 10 knots.

Ice-breakers.—Josef Stalin, Kaganovitch, Molotov (1936–38), 10,000 tons, 15 knots, 3 seaplanes. Lenin, 7,000 tons, 19 knots. Krassin (1917), 10,000 tons, 15 knots. Sadko (1913), 1,616 tons, 14 knots. Maligin (1912), 1,535 tons. Sedov, Rusamov, Sibiryakov (1909) 1,140 tons, 12 knots. Truvor (1896), 1,450 tons, 13 knots. Davidov, 1,525 tons, 15 knots. Dobriniya Nikititch (1916), 1664 tons. Feodor Litke (1909), 3,000 tons, 17 knots.

Depot Ships.—Krasni Gorn (1911), 1892 tons, 11 knots. Serp-I-Molot (1900), 6,000 tons, 11 knots. Smolni, 3,200 tons, 10 knots. Kommuna (1913), 2,400 tons, 10 knots. Sovietskaya Rossiya, 5,200 tons, 12 knots. Oka (1914), 1,982 tons, 10 knots.

Training Ships.—Svir, 10,000 tons gross, 15 knots. Martinov, Osoaviakhim, Artemev, Kursant, Ucheba, Praktika (1907), 300 tons. Komsomolets (1902), 11,000 tons, 18 knots, 4 3-in., Amur, 3,000 tons, 13 knots, 1 4·7-in.

Guardships.—Razvedchik (1904), 100 tons, 16 knots, 2 3-pr. Dzerzhinski, Kirov (1934), 800 tons, 20 knots, 2 4-in., 4 1·5-in. A.A. Five vessels, 200 tons, 16 knots, 1 4·7 in. Eight vessels, 350 tons, 20 knots, 1 4·7-in. Motor Torpedo Boats.—About 200, 10–26 tons. Watertankers—Vodolez I and II, 660 tons, 9½ knots.

New construction programme is not known.

SPAIN.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour. Side. / Deck.	Armour. Gun Position.	Armament. Guns	Armament. Torpedo Tubes.	Speed.	Fuel. Coal. / Oil.	Complement.
		tons.	ft.	ft.	ft.					£	ins.	ins.			knots.	tons.	
cr. .	**Canarias**	10,000	636	64	17·4	90,000 P.T.(G.) Y.	Ferrol . .	1931	1934	..	4 / 3	1	8 *8-in.*, 8 *4·7-in.* A.A., 8 *2-pr.* A.A., 2 seaplanes; 1 catapult	12 21-in. (T.)	33·0	— / 2750	765
„ .	**Miguel de Cervantes** .	7475	579½	54	16½	80,000 P.T.(G.) Y.	Ferrol . .	1928	1930	..	3 / 1	..	8 *6-in.*, 4 *4-in.* A.A., 2 *3-pr.*, 1 M.	12 21-in. (T.)	33·0	— / 1680	560
„ .	**Almirante Cervera** .							1925	1928								
„ .	**Galicia**, *ex*-**Libertad** (*ex*-Principe Alfonso)							1925	1927								
„ .	**Navarra**, *ex*-**Republica** (*ex*-Reina Victoria Eugenia)	4857	462	50	15¾	25,500 P.T.	Ferrol . .	1920	1923	..	3–1½ / 1½	3	6 *6-in.*, 4 *3·5-in.* A.A., 4 M., 1 L.	4 21-in.	25·5	1200 / 230	404
„ .	**Mendez Nuñez** . .	4509	462	46	14½	45,000 (G.)	Ferrol . .	1922	1924	..	3 / 1	..	6 *6-in.*, 4 *1·9-in.* A.A., 4 M.	12 21-in. (T.)	29	800 / 500	320
g.b. .	**Dato**	1314 (normal)	251½	23½	11¼	1700 tur.	Ferrol . .	1923	1925	..	..	..	4 *4-in.*, 2 *1·9-in.* A.A., 2 M.	..	15	324 / —	132
„ .	**Canalejas** . . .							1922	1924								
„ .	**Canovas del Castillo**							1922	1923								
„ .	**Calvo Sotelo** . . .	1600	282	39½	11	6500 tur.	Cadiz . .	1934	1938	..	..	..	4 *4·7-in.*, 4 *·5-in.* A.A. M.	..	20	..	..

SAILING TRAINING SHIPS.—Juan Sebastian de Elcano (1928), 3500 tons, 800 H.P. (Diesel), 9·5 knots, 4 2·4-in.; Galatea (*ex*-Clarastella) (1903), 2710 tons, 8½ knots, 4 2·24-in.

OILER.—Pluton, 7000 tons, 13 knots. SURVEY VESSELS.—Tofino, Malaspina, 1200 tons, 12 knots, 2 4-in.

ARMED TRAWLERS.—Alcazar, Larache and Tetuan, 400 tons, 10 knots, 1 3-in. (also 2 3-pr. in Alcazar); Arcila, 510 tons, 10½ knots, 2 3-in.; Uad Martin, Uad Lucas, Uad Muluya, 420 tons, 10 knots, 1 3-in.; Uad Quert, Xauen, 650 tons, 10½ knots, 1 3-in.

FISHERY PROTECTION VESSELS.—8 in number, 150 tons, 11 knots, 1 6-pr.

MINELAYERS.—Jupiter, Marte, Neptuno, Vulcano, 2100 tons, 18½ knots, 4 4·7-in. A.A., 4 1·6-A.A., 4 M.G., 264 mines, 2 depth charge release gears; Eolo, Triton, 1500 tons, 18·5 knots, 4 4-in., 4 1·5-in., 4 M.G., 100 mines.

TRANSPORT.—Contramaestre Casado, 7275 tons, 10½ knots, 4 1·6-in.

TUGS.—Cartagenero, Ferroland, Gaditano, 300 tons, 10 knots, 1 6-pr.; Galicia, 350 tons, 10 knots, 1 3-in.; Ciclope, 800 tons, 12 knots, 1 3-in.

Three coastguard patrol vessels, 250 tons, ordered and four oilers building. MOTOR TORPEDO BOATS.—Twenty in number.

SWEDEN.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel	Complement.
											Belt	Deck.	Side above Belt.	Bulkhead.	Gun Position.		Guns.	Torpedo Tubes.		Coal. / Oil.	
															Heavy Guns.	Second-ary.					
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
c.d.s.	Two in number	8000	436	64	10¾	..	..	Proj'd	..	..	..	..	..	..	..	..	4 *10-in.*, 6 *4·7-in.*, 8 *1·5-in.* A.A.	..	22	..	..
,,	**Aran**	3361	287	49¼	16·7	7000 Y. *t*	Gothenburg	1901	1902	..	7 K.S.	1⅞	..	..	7½ K.S.	5 K.S.	2 *8·3-in.*, 6 *5·9-in.*, 10 *6-pr.*, 1 *1-pr.*	2 sub. 18-in.	17·2 *t*	300 —	287
,,	**Drottning-Victoria** *	7100	396·7	61	21½	22,000 (G.) Y.	Gothenburg	1917	1921	666,000	8–6 K.S.	1½	4 H.S.	..	8 K.S.	5 K.S.	4 *11-in.*, 8 *5·9-in.*, 4 *3-in.*, 2 *6-pr.*, 6 M.	—	23·0	690 98	450
l. cr.	**Fylgia**	4200	378	48·6	20·6	12,444 Y. *t*	Stockholm	1905	1907	385,700	4 K.S.	2	..	..	5 K.S.	5 K.S.	8 *5·9-in.*, 4 *2·2-in.*, 4 *1·5-in.*	2 sub. 18-in.	22·7 *t*	900 —	328
Hangar Cruiser	**Gotland**	4700	442	50·6	14·7	39,000 (G.)	Gothenburg	1933	1934	910,000 (estimated)	..	..	..	..	..	..	6 *6-in.*, 4 *3-in.* A.A., 4 M., 100 mines, 8 seaplanes, 1 catapult. 100 mines	6 21-in.	27·0	oil	453
c.d.s.	**Gustav V.** *	7100	396·7	61	21½	22,000 (G.) Y.	Malmö	1918	1922	666,000	8–6 K.S.	1½	4 H.S.	..	8 K.S.	5 K.S.	4 *11-in.* 8 *5·9-in.*, 4 *3-in.* A.A., 2 *6-pr.*, 6 M.	—	23·0	690 98	450
,,	**Manligheten**	3361	287	49¼	17·4	7400 Y.	Malmö	1903	1904	..	7 K.S.	1⅞	..	..	7½ K.S.	5 K.S.	2 *8·3-in.*, 6 *5·9-in.*, 8 *6-pr.*, 1 *1-pr.*	2 sub. 18-in.	17·0	300 —	300
,,	**Oscar II.** *	4250	313·6	50·5	18	9000 Y.	Gothenburg	1905	1907	..	6 K.S.	2	6 K.S.	6 K.S.	7½ K.S.	5 K.S.	2 *8·3-in.*, 6 *5·9-in.*, 8 *6-pr.*, 1 *1-pr.*	2 sub. 18-in.	18·0	500 —	330
,,	**Sverige** *	6899	392·7	61	21½	20,000 tur. Y.	Gothenburg	1915	1917	666,000	8–6 K.S.	1½	4 K.S.	..	8 K.S.	5 K.S.	4 *11-in.*, 8 *5·9-in.*, 4 *3-in.*, 2 *6-pr.*, 6 M.	—	22·5	690 98	450
,,	**Tapperheten**	3361	287	49¼	17·7	6000 Y.	Malmö	1901	1903	..	7 K.S.	1⅞	..	..	7½ K.S.	5 K.S.	2 *8·3-in.*, 6 *5·9-in.*, 10 *6-pr.*, 1 *1-pr.*	2 sub. 21-in.	16·5	300 —	287
,,	**Wasa**	3361	287	49¼	17	6500 Y.	Stockholm	1901	1902	..	7 K.S.	1⅞	..	..	7½ K.S.	5 K.S.	2 *8·3-in.*, 6 *5·9-in.*, 10 *6-pr.*, 1 *1-pr.*	2 sub. 21-in.	17·2	300 —	287

* Reconstructed and modernised (1929–39).

MINELAYER.—Clas Fleming, 1570 tons, 4 4·7-in., 4 M., 20 knots, 100 mines. DEPÔT SHIPS FOR SUBMARINES.—Svea (1886), 2795 tons, 15 knots. 2 1·5 A.A.; 1 building, 2000 tons.

AIRCRAFT DEPÔT SHIP.—Dristigheten (1901), 3218 tons, 16 knots, 4 3-in., 3 aircraft. DEPÔT SHIPS.—Niord (1898), 3297 tons; Göta. 3350 tons. Jacob Bagge, Örnen, 738 tons, 20 knots, 2 4·7-in., 2 2·2-in. SAILING TRAINING SHIPS.—Af. Chapman (1888), Falken (1877), Najaden and Jarramas (1900), 350 tons.

VEDETTE BOATS (used for minelaying and minesweeping).—Kaparen, Jagaren, Snapphanen, Vaktaren, 290 tons, 24 knots, 2 3-in., 2 1-in. A.A. Altair, Argo, Astrea, Antares, Arcturus, Iris, Perseus, Polaris, Regulus, Rigel, Spica, Thevis, Vega, Vesta (1908–11), 105 tons, 20 knots, 2 2·2-in., 1 18-in. T.T.; Castor, Pollux (1909), 105 tons, 20 knots, 2 1·5 in-, 1 18 in. T.T.; No. 19 (1914), 55 tons, 10 knots; Nos. 27, 28, 30, 33, 34, 35, 36 (1900), 50 tons, 17 knots, 2 1·5-in., 1 15-in. T.T.

TENDERS.—Sokaren, Sveparen, Sprangaren, 160 tons, 10 knots 1 6-pr. ICEBREAKERS.—Atle, 1720 tons, 16 knots, 2 2·2 in.; Ymer, 3450 tons, 18 knots, 4 3-in.

MOTOR TORPEDO BOATS.—Nos. 3 and 4, 55 feet, 11 tons, 900 H.P., 41 knots, 1 M., 2 18-in. T.T. 4 others.

MINESWEEPERS.—Starkodder, Styrbjorn, 350 tons, 15 knots, 2 1·5-in.; M. 1 and 2, 60 tons, 16½ knots, 2 M.G.; Arholma, Landsort, 370 tons, 17½ knots, 2 3-in. 1 M.G.

UNITED STATES.—Battleships

Class.	NAME	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost. §	Armour.						Armament.		Speed.	Fuel.	Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position.		Guns.	Torpedo Tubes.		Coal. / Oil.	
															Heavy Guns.	Second-ary.					
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	*See below* ¶																				
b.	Iowa	45,000	880	108	36	..	New York	Blg.	..	..	..	..	..	..	..	..	9 *16-in.* guns	..	30	..	..
b.	New Jersey						Philadelphia	Blg.													
b.	Missouri						New York	Blg.													
b.	Wisconsin						Philadelphia	Blg.													
b.	Washington	35,000	750	108	28	70,000	Philadelphia (Navy Yard)	1940	..	..	..	..	..	..	..	..	9 *16-in.* guns, 20 *5-in.*, 16 smaller, 3 aircraft, 2 catapults	..	about 28 knots	..	..
b.	North Carolina						New York (Navy Yard)	1940													
b.	Indiana						Newport News	Blg.													
b.	Massachusetts						Bethlehem (S.B. Co.)	Blg.													
b.	Alabama						Norfolk (Navy Yard)	Blg.													
b.	South Dakota						New York (S.B. Co.)	Blg.													
b.	Arizona †	32,600	608	106¼	27½	33,376 B. & W. P. tur.	New York (Navy Yard)	1915	1916	1,485,000	14–8 K.S.	3	..	..	18 K.S.	..	12 *14-in.* (45 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal.) A.A., 2 *3-pr.*, 8 M., 2 L., 2 catapults, 3 floatplanes	—	21·0	— / 2322	1130
b.	Arkansas *	26,100	562	106	26	30,000 P. tur.	New York (S.B. Co.)	1911	1912	964,000	11–5 K.S.	3	..	8–6 K.S.	11 K.S	6½	12 *12-in.* (50 cal.), 16 *5-in.* (51 cal.), 8 *3-in.* (50 cal.) A.A., 2 *3-pr.*, 8 M., 1 catapult, 3 floatplanes	—	20·5	— / 5100	670
b.	California	32,600	624	97½	30½	26,800 tur. electric drive	Mare Island (Navy Yard)	1919	1921	2,620,000	14–8 K.S.	3	..	..	18 K.S.	..	12 *14-in.* (50 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal.) A.A., 2 *6-pr.*, 8 M., 2 catapults, 3 floatplanes	—	21	— / 4656	1230

b	**Colorado** .	. 32,500	624	97½	30½	27,300 B. & W. tur. electric drive	New York (S.B. Co.)	1921	1923	1,383,000	13½–12 K.S.	..	..	..	18 K.S.	..	8 *16-in.* (45 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal.) A.A., 2 *6-pr.*, 2 *1-pr.*, 8 M., 2 catapults, 3 floatplanes	2 (sub.) 21-in.	21 0	— 4570	1230
b.	**Idaho** ‡ .	. 33,400	624	106¼	29½	40,000 B. & W. P.T.	New York (S.B. Co.)	1917	1919	1,485,000	14 K.S.	3	.		18 K.S.	..	12 *14-in.* (50 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* A.A., 2 *3-pr.*, 8 M., 2 L., 2 catapults, 3 floatplanes	..	21½	— 3271	1130
b.	**Maryland**	. 31,500	624	97½	29⅔	27,300 B. & W. tur. (G.) and electric drive	Newport News	1920	1921	1,383,000	13½–12 K.S.	..	..	..	18 K.S.	..	8 *16-in.* (45 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal.) A.A., 2 *6-pr.*, 8 M., 2 catapults, 3 floatplanes	2 (sub.) 21-in.	21	— 4570	1230
b.	**Mississippi** ‡	. 33,000	624	106¼	29¼	40,000 B. & W. C.T. (G.)	Newport News	1917	1917	1,485,000	14 K.S.	3	..	..	18 K.S.	..	12 *14-in.* (50 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* A.A., 2 *6-pr.*, 8 M., 2 catapults, 3 floatplanes	..	21	— 3271	1130

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* Modernised 1926. Used as training ship. † Modernised 1931. ‡ Modernised, 1934.

§ The sums given in this column are exclusive of the cost of armour and armament according to the system of making appropriations in the estimates.

¶ Contracts have been placed for 7 new battleships, probably 45,000 tons each.

UNITED STATES.—Battleships—*continued.*

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.						Armament.		Speed.	Fuel.	Complement.
											Belt.	Deck.	Side above Belt.	Bulkhead.	Gun Position.		Guns.	Torpedo Tubes.		Coal. Oil.	
															Heavy Guns.	Second-ary.					
		tons.	ft.	ft.	ft.					£	in.	in.	in.	in.	in.	in.			knots.	tons.	
b.	**Nevada** § .	29,000	583	108	27½	25,000 Y. P. tur.	Quincy, Mass. (Fore River)	1914	1916	1,211,342	13½–8 K.S	1½–3	..	13½ K.S.	18–16 K.S.	..	10 *14-in.* (45 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal.) A.A., 2 *6-pr.*, 8 M., 2 L., 2 catapults, 3 floatplanes	—	20·5	— 2000	1100
b.	**New Mexico** ‡	33,400	624	106¼	29½	40,000 B. & W. Electric drive	New York . (Navy Yard)	1917	1918	1,485,000	14 K.S.	3	..	..	18 K.S.	..	12 *14-in.* (50 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* A.A., 2 *6-pr.*, 8 M., 2 catapults, 3 floatplanes	—	21·5	— 3271	1140
b.	**New York** * .	27,000	573	106	26	28,100 B. & W. recip.	New York . (Navy Yard)	1912	1914	1,815,114	12–4 K.S.	3	9 K.S.	10 K.S.	14–8 K.S.	6 K.S.	10 *14-in.* (45 cal.), 16 *5-in.* (51 cal.), 8 *3-in.* (50 cal.) A.A., 2 *3-pr.*, 8 M., 1 catapult, 3 floatplanes	—	21·0	— 5200	1230
b.	**Oklahoma** § .	29,000	583	108	28½	25,300 B. & W. recip.	New York . (S.B. Co.)	1914	1916	2,200,000	13½–8 K.S.	1½–3	..	13½ K.S.	18–16 K.S.	..	10 *14-in.* (45 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal.) A.A., 2 *3-pr.*, 8 M., 2 catapults, 3 floatplanes	—	20·5	— 2000	1130
b.	**Pennsylvania** †	33,100	608	106¼	28	40,000 B. & W. Cur. tur.	Newport News	1915	1916	1,485,000	14 K.S.	3	..	..	18 K.S.	..	12 *14-in.* (45 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal) A.A., 2 *3-pr.*, 8 M., 2 catapults, 3 floatplanes	—	21·0	— 2300	1130

b.	**Tennessee** . .	32,300	624	97½	30¼	26,800 B. & W. Tur. electric drive.	New York (Navy Yard)	1919	1920	2,620,000	14–8 K.S.	8	..	..	18 K.S.	..	12 *14-in.* (50 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal.) A.A., 2 *6-pr.*, 2 *1-pr.*, 8 M., 2 catapults, 3 floatplanes	2 (sub.) 21-in.	21·0	— 4656	1230
b.	**Texas*** . .	27,000	573	106	26	28,100 recip.	Newport News	1912	1914	1,166,000	12–4 K.S.	8	9 K.S.	10 K.S.	14–8 K.S.	6 K.S.	10 *14-in.* (45 cal.), 16 *5-in.* (51 cal.), 8 *3-in.* (50 cal.) A.A., 2 *3-pr.*, 8 M., 1 catapult, 3 floatplanes	—	21·0	— 5200	670
b	**West Virginia**	31,800	624	97½	30	27,300 B. & W. tur. electric drive.	Newport News	1921	1923	1,383,000	13½–1 K.S.	..	..	..	18 K.S.	..	8 *16-in.* (45 cal.), 12 *5-in.* (51 cal.), 8 *5-in.* (25 cal.) A.A., 2 *6-pr.*, 2 *1-pr.*, 8 M., 2 catapults, 3 floatplanes	2 (sub.) 21-in.	21·0	— 4570	1230

Battleship Utah was converted to a mobile target ship in 1931 in accordance with the London Naval Treaty, and the battleship Wyoming was converted to a training ship (speed 18 knots) in 1931 in accordance with London Naval Treaty.

* Modernised in 1927. Modernisation included fitting of bulge protection, protection of decks against aerial attack, conversion to oil burning, installation of 3-in. A.A. battery, and addition of catapults. Cost about £600,000 each ship. Displacement increased about 3000 tons.

† Modernised in 1931. Modernisation included fitting bulges, reboilering, increasing elevation of turret guns, replacing former anti-aircraft batteries by 5-inch A.A. guns, new masts and new fire control.

‡ Taken in hand for modernisation 1931. New Mexico and Mississippi completed 1933. Idaho completed 1934. Modernisation includes fitting, increased deck protection increasing elevation of turret guns, installation of eight 5-in. A.A. guns, reboilering, fitting of newturbines (the electric drive in New Mexico has been replaced by turbine machinery), alterations to masts and bridges, and fitting of bulges.

§ Modernisation in 1929. Alterations include fitting of bulges, deck protection, tripod masts, increasing elevation of turret guns, fitting a new 5-in. anti-aircraft battery.

The modernisation of California, West Virginia, Colorado, Maryland, and Tennessee is projected.

UNITED STATES.—Aircraft Carriers.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost.	Armour.		Armament.		Speed.	Fuel. Coal. / Oil.	Complement.
											Deck.	Belt.	Guns.	Torpedo Tubes.			
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
A.C. A.C.	*See below* * Wasp	14,700	739	80	20	.. (G. Y.)	Bethlehem S. B. Co.	1939 Bldg.	1940	about 4,000,000	..	..	8 5-*in.*, 18 1·1-*in.* M. A.A., 77 aircraft, 1 catapult	..	30	Oil	..
	Bonhamme Richard Intrepid Kearsarge						Norfolk Navy Yard	Bldg.									
A.C. A.C. A.C. A.C.	Essex Hornet Yorktown Enterprise	19,800	802	83	21¾	120,000 (G.) B. & W.	Newport News	Bldg. 1936	1938	..	..	..	8 5-*in.* A.A. guns, 16 1·1-*in.* M. A.A., 76 aircraft. 1 catapult	—	34	Oil	1200
A.C.	Ranger	14,500	769	80	19⅔	53,500 (G.)	Newp't News S. B. Co.	1933	1934	about 4,000,000	..	..	8 5-*in.* A.A., 50 M.G., 76 aircraft	—	29¼	Oil	1434
A.C.	Lexington	33,000	880	105½	31¼	180,000 tur.electric (Y.)	Bethlehem S. B. Co. (Fore River)	1925	1927	9,000,000	3	6	8 8-*in.* (55 cal.), 12 5-*in.* (25-cal.) A.A. 12 M.G.; 2 6-*pr.* Operates about 80 landplanes. 1 catapult	—	33·9	7100	1927
A.C.	Saratoga	33,000	888	105½	31	180,000 tur.electric (W. F.)	N.Y. Shipbuilding Co.	1925	1927	9,000,000	3	6		..	33·9	7100	
A.C.	Langley †	11,500	542	65¼	19	7,200 tur.electric	Mare Island Navy Yard	1912	1922 as aircraft carrier	..	3	..	4 5-*in.* (51 cal.), operates 7 landplanes	—	15	— / 2000	411

For particulars of Aircraft Tenders and Repair Ships, see page 186.

* Contracts have been placed for 8 new aircraft carriers; 4 to be built at Newport Shipbuilding Company, and 4 to be built at Bethlehem S. B. Co.

† Formerly Collier Jupiter, converted 1937 into aircraft tender.

UNITED STATES.—Cruisers.

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost (exclusive of armament).	Armour. Belt. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Fuel. Oil.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
	About 40 cruisers						Projected										
	Baltimore Boston Pittsburgh St. Paul	..	..	..	..	..	.,	Bldg.	..	..	..	..	..	..	..	..	..
	Amerstdam Santa Fe Tallahassee Birmingham Mobile Flint Pasadena Springfield Topeka	..	..	..	..	..	..	Bldg.	..	..	..	..	..	..	..	..	..
Phœnix Class	Phœnix	10,000 esti- mated	600 (on W.L.)	61 6	19 9	100,000 (G.) B.&W.	N.Y.S. Co., Camden	1938	1938	2,395,000	5/3	..	15 *6-in.*, 8 *5-in.*, 10 M., 4 seaplanes, 2 catapults	—	32½	2100	630
	Boise						Newport News	1936		2,330,000							
	Honolulu						N.Y. Navy Yard	1937									
	St. Louis						Newport News	1938	1939	..							
	Helena						N.Y. Navy Yard	1938									

UNITED STATES.—Cruisers.—*Continued.*

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where Built.	Date of Launch.	Date of Completion.	Cost (exclusive of armament).	Armour. Belt. / Deck.	Armour. Gun Position.	Armament. Guns.	Armament. Torpedo Tubes.	Speed.	Fuel. Oil.	Complement.
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
	Atlanta San Juan Juneau San Diego	6,000	530 (on w.l.)	53¼	16½	75,000 (G.)	Federal, S.B. Kearney Bethlehem S. B. Co	Bldg.	..	..	..	..	16 5 *in.* guns	6 *21-in*	33	Oil	..
	Cleveland Columbia Montpelier Denver	10,000	..	..	..	(G.)	..	Projd.	..	..	..	..	12 *6-in.* guns	..	33	Oil	..
Wichita Class	Wichita	10,000	600 (on w.l.)	61¾	19¾	100,000 (G.)	Philadelphia Navy Yard	1937	1939	..	..	..	9 *8-in.*, 8 *5-in.* A.A., 2 *3-pr.*, 10 smaller, 2 catapults, 4 aircraft	None	32½	1650	630
Brooklyn Class	Savannah	10,000	600 (on w.l.)	61½	19¾	95,000 (G.)	N.Y.S. Co., Camden	1937	1938		5/3	..	15 *6-in.*, 8 *5-in.*, A.A., 10 M., 4 seaplanes, 2 catapults	None	32½	Oil	630
	Nashville						N.Y.S. Co., Camden	1937									
	Brooklyn						New York Navy Yard	1937	1938	2,410,000 estimated							
	Philadelphia						Philadelphia Navy Yard	1937	1938								
Quincy Class	Vincennes	9,400	588	61¾	19½	107,000 P.T (G.)	Bethlehem S. B. Corp., Quincy	1936	1937	2,410,000 estimated	..	..	9 *8-in.* guns, 8 *5-in.* A.A., 10 M., 2 *3-pr.*, 10 smaller, 2 catapults, 4 aircraft	None	32·7	Oil	620
	Quincy							1935	1936	1,860,000 estimated							
Astoria Class	Tuscaloosa	9975	588	61¾	19½	107,000 W.G.T. (Tuscaloosa) P.T.(G.)	New York, S. B. Co.	1933	1934		5/3		9 *8-in.* (55 cal.), 8 *5-in.* (25 cal.) A.A., 2 *3-pr.*, and 10 smaller, 2 catapults, 4–6 aircraft, 50 mines	None	32·7	oil	620
	San Francisco	9950					Mare Island Navy Yard			2,090,000 estimated							
	New Orleans	9950					New York Navy Yard			2,460,000							
	Astoria	9950					Puget Sound Navy Yard			2,460,000							
	Minneapolis	9950					Philadelphia Navy Yard			2,460,000							

Portland Class	**Portland**	9800	610¼	66	17½	107,000 P.T.(G.)	Bethlehem S. B. Co. Quincy	1932	1933	2,210,000	4/2		9 *8-in.* (55 cal.), 8 *5-in.* (25 cal.) A.A., 2 *3-pr.*, and 10 smaller, 2 catapults, 4–6 aircraft	6 21-in.	32·7	oil	620
	Indianapolis	9950					New York S. B. Co.	1931	1932	2,250,000							
Chester Class	**Northampton**	9050	600¼	66	16·3–17·6	107.000 P.T. (G.)	Bethlehem S. B. Corp., Quincy	1929	1930	2,180,000	3/2	..	9 *8-in.* (55 cal.), 4 *5-in.* (25 cal.) A.A., 2 *3-pr.*, 8 M., 2 catapults, 4-6 seaplanes	6 21-in. (T)	32½	1500	611
	Chester	9200		66			American Brown Boveri Elec. Corp.	1929	1930	2,230,000							
	Louisville	9050		66			Puget Sound Navy Yard	1930	1931	2,290,000							
Augusta Class	**Chicago**	9300		68			Mare Island Navy Yard	1930	1931	2,280,000							
	Houston	9050		65			Newport News S. B. & D. D. Co.	1929	1930	2,170,000							
	Augusta	9050		66				1930	1931	2,170,000							
Omaha Class	**Cincinnati**	..	..	..	..	90,000 P.T. (G.)	Tacoma, Wash.	1921	1924	1,730,000	3/1½	..	12 *6-in.* (53 cal.) (Cincinnati and Detroit, 10 *6-in.*), 4 *3-in.* (50 cal.) A.A., 2 *3-pr.*, 2 catapults, 2 aircraft, 30 mines	6 21-in. (T)	33·7	1800	450
	Concord	7050	555½	55⅓	13½		Philadelphia (Cramp)			1,742,000							
	Detroit					90,000 C.T. (G.)	Bethlehem S. B Co. Quincy	1922	1923	1,584,000	3/1½	..					
	Trenton .	7050	555½	55⅓	13½	90,000 P.T. (G.)	Philadelphia (Cramp)	1923	1924	1,823,000	3/1½	..	12 *6-in.* (53 cal.) (Marblehead, 11 *6-in.*), 4 *3-in.* (50 cal.) A.A.; 2 *3-pr.*, 4 M., 2 catapults, 2 floatplanes, 30 mines	6 21-in. (T.)	33·7	1800	450
	Marblehead								1924	1,810,000							
	Memphis .							1924	1925	1,838,000							
	Milwaukee						Tacoma, Wash.	1921	1923	1,794,000							
	Omaha .	7050	555½	55⅓	13½	90,000 P.T. (G.) (Raleigh) C.T (G.)	Tacoma, Wash.	1920	1923	1,823,000	3/1½	..	10 *6-in.* (53 cal.) (Omaha, 12 *6-in.*), 4 *3-in.* (50 cal.) A.A.; 2 *3-pr.*, 2 catapults, 2 floatplanes, 30 mines	6 21-in. (T.)	33·7	1800	450
	Raleigh .						Bethlehem S.B. Co., Quincy	1923	1924	1,616,000							
	Richmond						Philadelphia (Cramp)	1921	1923	1,742,000							

UNITED STATES.—Cruisers—*continued.*

Class.	NAME.	Standard Displacement.	Length. (Extreme.)	Beam.	Draught.	Horse-Power. Type of Machinery and Boilers.	Where built.	Date of Launch	Date of Completion.	Cost (exclusive of armament).	Armour.		Armament.		Speed.	Fuel.	Complement.
											Belt. Deck.	Gun Position.	Guns.	Torpedo Tubes.		Oil.	
		tons.	ft.	ft.	ft.					£	in.	in.			knots.	tons.	
Pensacola Class	Salt Lake City	9100	585½	65¼	16	107,000 P.T. (G.)	New York S.B. Co.	1929	1929	3,400,000	3 — 1½	..	10 *8-in.* (55 cal.), 4 *5-in.* (25 cal.) A.A., 2 *3-pr.*, 8 M., 2 catapults, 4 planes	6 21-in. (T.)	32·7	3000	603
	Pensacola.						Navy Yard, New York	1929	1930								

Gunboats.—Tulsa (1923), and Asheville (1920), 1270 tons, 12 knots, 3 4-in., 2 3-pr., 3 1-pr.; Sacramento (1914). 1140 tons, 12¾ knots, 3 4-in., 2 3-pr., 2 1-pr.; Charleston, and Erie (1936), 2000 tons, 20 knots, 4 6-in., 4 M.G., 1 seaplane; Dubuque and Paducan (1905), 1000 tons, 13 knots, 4 4-in.

River Gunboats.—Guam (1927), Tutuila (1928), 370 tons, 14 knots, 2 3-in., 10 M.; Monocacy (1914), 180 tons, 13¼ knots, 2 3-in., 7 M.; Luzon, Mindanao (1928), 560 tons, 16 knots, 2 3-in., 10 M.; Oahu (1928), 450 tons, 15 knots, 2 3-in., 10 M.

Minelayers.—Aroostook and Oglala (1918), 4200 tons, 20 knots, 1 5-in., 2 3-in. A.A., 350 mines; 8 light mine-layers, *ex*-T.B.D.'s., 1160–1190 tons, 35 knots, 4 4-in., 1 3-in. A.A., 80 mines. Terror, 6000 tons (building), 5-in. guns.

Minesweepers.—26 in number, "Bird" class (1918, 1919), 840 tons, 1400 H.P., 14 knots, 2 3-in. A.A. guns authorised but not carried. 6 more are equipped as submarine salvage vessels (Chewink, Falcon, Mallard, Ortolan, Pigeon and Widgeon, built 1914–18, 1210–1270 tons, 14 knots). Raven, Osprey, Auk, and 8 others. 600 tons (building).

Aircraft Tenders.—Wright (1921), 8675 tons, 15 knots, 2 5-in., 2 3-in. A.A.; Avocet, Gannet, Heron, Lapwing, Pelican, Sandpiper, Swan, Teal, Thrush, (1918–1919), 840 tons, 14 knots, 2 3-in. A.A.; Curtiss, Albemarle, 8300 tons (building); Barnegat, Biscayne, Casco, Mackinac, Humboldt, Metagorda, 1650 tons, 20 knots (building).

Coast Guard Cruising Cutters.—7 in number, 2000 tons, 20 knots, 2 5-in., 2 6-pr., 1 seaplane; 6 in number, 1000 tons, 13½ knots, 2 3-in.; 10 in number, 1500 tons, 16½ knots, 1 5-in., 1 3-in.; 4 in number, 1800 tons, 15 knots, 2 5-in., 1 3-in.; 9 others, 800-1200 tons, 12 knots, 2 3-in.

Coast Guard Patrol Boats.—17 in number, 311 tons, 16 knots, 1 3-in., 2 6-pr.; 36 in number, 200 tons, 10 knots, 1 3-in.; 15 in number, 45 tons, 22 knots; 58 in number, 37 tons, 13½ knots, 1 1-pr.; 20 motor boats, 20 tons. **Radio-Controlled Target Ships.**—Boggs, Lamberton (*ex*-Destroyers); Utah (*ex*-Battleship).

Motor Torpedo Boats.—P1–4, 59 feet long, 40 knots, 2400 H.P.; P5–8, 81 feet long, 40 knots, 3600 H.P.; P9 and 22 others, 70 feet long, 43 knots, 3600 H.P.

Submarine Chasers.—S.C. 449, 450, 110 feet long, 22 knots, 1 3-in.; S.C. 451, 170 feet long, 22 knots, 1 3-in.; 14 in number (1918–21), 75 tons, 17 knots, 1 3-in.

Oilers.—Cimarron, Neosho, Platte (1939), 8000 tons, 16½ knots; Brazos, Neches, Pecos (1920), 5400 tons, 14 knots, 4 5-in., 2 3-in.; Ramapo, Sapelo, Trinity, Sepulga, Salinas, Tippecanoe, Rapidan (1920), 5,375 tons, 10½ knots; Maumee, Guyama, Kanawha (1915), 4990 tons, 14 knots, 4 5-in., 4 4-in.; Laramie, Kaweah, Mattole (1920), 4410 tons, 11 knots, 2 5-in., 2 3-in.; Robert L. Barnes (1917), 1630 tons, 8½ knots; 2 ships building.

Colliers.—Nereus, Proteus (1913), 6275 tons, 14 knots. **Ammunition Ships.**—Pyro, Nitro, 7,025 tons, 13 knots, 4 5-in., 2 3-in.

Destroyer Tenders.—Dobbin (8325 tons): Whitney (8325 tons), and Melville (5250 tons), 16 knots, 8 5-in., 4 3-in.; Altair, Denebola and Rigel, 6250 tons, 10½ knots, 8 5-in., 4 3-in. A.A.; Black Hawk, 5600 tons, 13 knots, 4 5-in.; Bridgeport, 7125 tons, 12½ knots, 8 5-in. Dixie, Prairie, 9000 tons, 16½ knots.

Submarine Tenders.—Holland (1926), 8,100 tons, 16 knots, 8 5-in., 4 3-in. A.A., 2 6-pr.; Sumner (1915), 2900 tons, 14 knots, 4 5-in.; Canopus (1919), 5975 tons, 13 knots, 2 5-in., 4 3-in. A.A.; Camden (1900), 6075 tons, 12 knots, 4 4-in., 2 3-pr.; Beaver (1910), 4670 tons, 16½ knots, 4 5-in., 2 1-pr.; Argonne (1921), 8400 tons, 15½ knots, 2 6-pr. Fulton, Sperry (building), 9000 tons, 16 knots; Griffin, 16½ knots; Seagull (1919), 840 tons, 14 knots, 2 3-in.

Repair Ships.—Medusa (1924), 8125 tons, 16 knots, 4 5-in., 2 3-in. A.A., 2 6-pr.; Vestal, Prometheus (1909), 6625 tons, 16 knots, 4 5-in., 1 3-in.; Vulcan, 9500 tons (building).

Training Ship.—Wyoming (1912), 26,000 tons, 18 knots, 16 5-in., 8 3-in.; Wheeling, 870 tons, 13 knots; Wilmington, 1280 tons, 15 knots, 8 4-in.

4 Store ships, 5 Cargo ships, 8 Transports, 2 Hospital ships, 9 Patrol vessels (Eagle class, 430 tons, 18 knots, 2 4-in., 1 3-in. A.A.), 2 survey vessels, 35 tugs, 10 cable ships.

SHIPS OF THE LESSER NAVIES.

Bulgaria.—Patrol vessels: Derzki, Khrabri, Letoutschy, Shumni, Smyeli, Strogi (1907–8), 97 tons, 26 knots, two 1·85-in., 1 M., two 18-in. torpedo tubes. Motor boats: Vzrif, Capitan Minkoff, 40 tons, 17 knots, 2 M. Belmoretz, Chernomoretz (1918), 77 tons, 17 knots, one 1·85-in., 2 M. Two Minesweepers (1918), 350 tons, 17 knots. Training Ships: Assen 240 tons, 7 knots, and Simeon, 600 tons, two 3-in., four 1·5-in.

China.—Sloop: Hai Ching *ex*-Yung Chi (Shanghai, 1915) 870 tons, 1,350 H.P., 13 knots, one 4-in., one 3-in., four 3-prs. and three smaller guns. Gunboats: Yung Sui (Shanghai, 1929), 600 tons, 4,000 H.P., 18 knots, one 6-in., one 4·7-in., three 3-in. A.A., and eight smaller guns; Min Sen, Min Chuan (Shanghai, 1931), 465 tons, 16 knots, one 4·7-in., one 4-in., one 3-in. A.A., and two 6-prs. Chang Ning, Cheng Ning, Wu Ning, Sui Ning, Wei Ning, Su Ning, Kiang Ning, Hai Ning (1933–34), 300 tons, 11 knots, two 2¼-in, 3 M. Old Gunboats: Chu Chien, Chu Kuan, Chu Tung (Kobe, 1907), 700 tons, 11 knots, two 4·7-in., two 3-in. and some smaller guns. Torpedo boat: Hu Chun (1908), 96 tons, 23 knots, one 1·85-in., one 1·5-in., three 14-in. torpedo tubes. Ten patrol boats of 300 tons armed with 6 prs. Fourteen river gunboats.

NOTE.—Owing to the hostilities between China and Japan, the above list is uncertain, as a number of vessels have been sunk or passed into Japanese hands.

Colombia.—Gunboats: Presidente Mosquera, 200 tons; Cartagena, Santa Marta, Barranquilla (Yarrow's, 1930), 140 tons, length 137½ ft., speed 13½ knots, two 3-in. A.A. The following two destroyers were purchased from Portugal early in 1934, Caldas and Antioquia (1934), 1,282 tons, length 319 ft., beam 31 ft., speed 36 knots, four 4·7-in. guns, three 1½-in. A.A. and eight 21-in. torpedo tubes; built by Yarrow's in Portugal. River gunboats: Mariscal Sucre, 500 tons, Cordoba, 450 tons, four 3-in. Patrol vessels: Junin, Carabobo and Pichincha, 200 tons, 13 knots, one 3-in. Transports: General Mosquera, 3,500 tons, two 3·5-in.; Bogota, 500 tons, 16 knots, one 3·5-in., two 3-in., 2 M.

Cuba.—Light cruiser, Cuba, 2,055 tons, 6,000 H.P., 18 knots, two 4-in., six 3-in., four 6-pr., four 3-pr., 2 M. Training ship: Patria (1911), 1,200 tons, 16 knots, two 3-in., four 6-pr., four 3-pr. Gunboats: Habana, Pinar del Rio, Villas, Matanzas (1912), 80 tons, 12 knots, one 1-pr.; 24 de Febrero, 10 de Octubre (1911), 218 tons, 12 knots, three 3-pr.; Baire (1906), 500 tons, 14 knots, four 3-in., two 3-pr., 1 M.; Yara (1895), 450 tons, 12 knots, one 3-in., two 6-pr.;

20 de Mayo (1895), 200 tons, 12 knots, two 3-pr., two 1-pr.; Enrique Villuendas (1899), 178 tons, 16 knots, two 3-pr.; Captain Quevedo (1932), 137 tons, 12 knots, two 1-pr., one 3-in. A.A.

Dominica.—Transport: Presidente Trusillo (1910), 1,300 tons, 11 knots. Yacht: Ramsis, 969 tons (gross), two 3-pr.

Ecuador.—Mine-laying patrol vessel Tarqui (50 tons). Gunboat Abdon Calderon (*ex*-Cotopaxi) (1884), 700 tons, 10½ knots. Training ship: President Alfaro, 850 tons gross, 16 knots, two 3-in.

Egypt.—Patrol vessels: El Amira Fawzia (1929), 2,640 tons, 14 knots, two 3-pr. fitted as transport; El Amir Farouq (1926), 1,441 tons, 17 knots, one 6-pr., 2 M.; Mabahiss (1930), 618 tons, 11 knots, used for surveying. Training ship: Abdel Monaym (1902), 610 tons, 13½ knots. Inspection vessel and store carrier: Naphtys (1905), 650 tons, 7½ knots. Coastal motor boats: Al Sarea (J. S. White, 1937), 13 tons, 36 knots, one 1·5 in.; 2 C.M.B.'s., 20 tons, 20 knots; Qamar, 23 tons, 11 knots; El Hoot, 24 tons, 7 knots. A number of M.T.B.'s, escort vessels, and minesweepers are projected.

Estonia.*—Minesweepers Keri and Vaindlo (1914), 50 tons, 9 knots, one 3-pr., minelayers Sourop and Ristna, 500 tons, 12 knots, one 3-in. gun, one 1-pr.; Tahkona, 45 tons, 12 knots; Ice-breakers: Suur Toll and Tasunia, 4,800 tons, 15 knots; Peipus Lake gunboats Ahti, 144 tons, 10 knots, two 2-in. guns, and Tartu, 108 tons, 11 knots, two 1-pr. Torpedo boat Sulev (*ex*-German A32) (1917), 243 tons, 26 knots, two 3-in., two 18-in. torpedo tubes, 10 mines; gunboat Laine, 400 tons, 12 knots, two 3-pr.; river gunboat Mardus, 100 tons, 10 knots, two 3-in. guns, 2 M. Two submarines, Lembit and Kalev, built at Vickers' 1936, 620 tons surface displacement, 820 tons submerged, 1,200 H.P., 13½ knots on surface, 8½ knots submerged, one 40-mm. A.A. gun, four 21-in. torpedo tubes. One destroyer and three M.T.B.'s are projected.

* Now under the control of the Soviet Union.

Finland.—Patrol boats: Uusimaa (1919), and Hämeenmaa (1918), 400 tons, 15 knots, two 4-in. guns, one 1·5-in. A.A.; Karjala (1918) (*ex*-Filin), and Turunmaa (1918) (*ex*-Orlan), 342 tons, 15 knots, two 3-in. guns; 7 M.T.B.'s, 11–13 tons, 25–35 knots, two torpedo tubes. Minesweepers: Rauta, Vilppula (1916), 165 tons, 12 knots, two 3-in., one 1·5-in. A.A.; Aiwen, Kiiski Muikku, Sarki, Lahna, Kuore (1937), 17 tons, 10 knots. Minelayers: Pommi, Paukka, Lieska, Miina, Loimu (1916), 80 tons, 8 knots; Vakava and Klercker, 300 tons (building). Icebreakers: Sisu (1939), 2,000 tons, 15 knots, two 4-in.; Otso (1936), 13 knots; Jaakarhu (1926), 4,825 tons, 15 knots; Sampo (1899), 1,850 tons, 13 knots; Tarmo (1907), 2,300 tons, 14 knots; Murtaja (1890), 820 tons, 11 knots; Apu (1899), 600 tons, 13 knots; Voina (1924), 2,000 tons, 14 knots. Salvage Vessel: Mursa (1902), 615 tons (gross), 8 knots. 11 motor launches. Two armoured gunboats (4-in. belt), Väinämöinen and Ilmarinen, length

305 ft., 3,900 tons, 5,000 H.P. (Diesel-electric), 15 knots, four 10-in guns, eight 4·1-in. guns, built at A/B Crichton-Vulkan, Abo (1932–3). Submarines Iku-Turso, Vetehinen and Vesihiisi (Abo, 1930), 490/700 tons, speed 14 knots surface, 9 knots submerged, one 3-in. gun, 20 mines, six 21-in. torpedo tubes ; Saukko (Helsingfors, 1930), 100/136 tons, two 18-in. torpedo tubes, nine mines ; Vesikko (1933), 250/300 tons, 13/7 knots, four 21-in. torpedo tubes, one machine-gun. Sailing training-ship Suomen Joutsen (*ex*-German Oldenburg). Submarine parent ship : Louhi, 640 tons, 11 knots, two 1·85-in., 150 mines. Four M.T.B.'s are projected.

Hayti.—Special service vessels, Nord Alexis (1891), 1,230 tons, 14 knots, two 4·7-in. ; Veretieres (1889), 270 tons, 9 knots, 2 M. ; 17 Decembre, 851 tons ; Pacifique, 488 tons, 14 knots.

Hungary.—Patrol vessels : Gyor, Basa, Sopron, Debreczen (1918), 138 tons, two 2·75-in., 2 M., 15 knots, complement 44 ; Kecskemet, Szeged, 131 tons, four 2·75-in., 2 M., 15 knots. Motor launches : Honved, Huszar, Tuzer (1916), 17 tons, 7 knots, 2 M. Auxiliary vessels : Csobane (1926), 300 tons ; Koros, 170 tons ; Maros, 50 tons ; Mecsek, 35 tons. Training ship : Radacsony, 230 tons, 10½ knots.

Iceland.—Three fishery protection vessels : Aegir, 500 tons, 14 knots, two 6-pr. ; Thor, 300 tons, 10 knots, one 2¼-in. ; Odinn.

Iraq.—Four in number motor patrol vessels, 100 ft. in length, 60 tons, 280 H.P., 12 knots, one 3·7-in. howitzer, 4 M.

Latvia.*—Gunboat Virsaitis (*ex*-German M68), 480 tons, 16 knots, two 3-in., two 6-pr., one 3-in. A.A., one torpedo tube ; one ice-breaker, Krisjanis Valdemars, 2,250 tons, 14 knots ; two submarines (1927), Ronis and Spidola, 390/514 tons, 14½/9¼ knots, one 3-in. A.A., 2 M., six 18-in. torpedo tubes ; two minesweepers, Imanta, Viesturs, 225 tons, 14 knots, one 3-in. A.A., 4 M., thirty mines, completed in 1926 ; one submarine depot ship, Varonis, formerly an ice-breaker, 10 knots ; Surveying vessel, Hidrografs (1918), 450 tons, 10 knots.

* Now under the control of the Soviet Union

Lithuania.*—Patrol vessel : Prezidentas Smetone (1917), 500 tons, two 3-in. guns, 16 knots.

* Now under the control of the Soviet Union.

Manchukuo.—Destroyer : Hai Wei, 755 tons, 31·5 knots, three 4·7-in., six 18-in. torpedo tubes. Gunboats : Chingjen, Tingpien (1935), 290 tons, 13 knots, two 4·7-in., 3 M. ; Shun Tien, Yang Min (1934), 270 tons, 12 knots, two 4·7, 3 M. ; Ta Tung, Li Min (1933), 65 tons, 10½ knots, 3 M. ; Li Chi (1903), 220 tons, 13 knots, one 3-in., 4 M. ; Li Sui (1903), 220 tons, 13 knots, two 2¼-in., 2 M. ; Kiang Tung, Kuang Ning, Kiang Chin (1900), 200 tons, 9 knots, one 3-in., 4 M.; Ching Yun building. Patrol boats: Haifeng, Hailung (1933), 200 tons, 14 knots, two 3·1 in., 2 M.; Hai Kuang, Hai Sui, Hai Jung, Hai Hua (1933), 42 tons, 12 knots, one 2·24-in., 2 M.; Daichi Kaihen, Daini Kaihen (1933), 42 tons, 15 knots, 2 M. Armed launches: Chi Min (1934), 20 tons, 10 knots, 2 M.; En Min, Hui Min, Pu Min (1933), 15 tons, 10 knots, 2 M.

Mexico.—Coast defence vessel Anahuac (1898), 3,162 tons, 15 knots, two 9·4-in., four 4·7-in., four 6-pr., 2 M., 2 L.; gunboats: Bravo 1,227 tons, 3,000 I.H.P., 12¼ knots (Leghorn 1904), two 4-in., four 6-pr.; G20-29 (1934–5), 130 tons, 3,000 H.P., 26 knots, two 25 M.M. A.A. and four 13 M.M. A.A. Armed transport: Durango, built in Spain, 1935, 1,600 tons, 20 knots, 3,000 miles endurance at 15 knots, four 4-in., two twin 1-in. pompoms, two four-barrelled ·5-in. machine guns, built to carry 500 men and 80 horses. Three others, Querataro, Potosi and Guanajuato, 1,300 tons, 20 knots, three 4-in. and twelve machine guns, to transport 230 men and 20 horses. Patrol vessels: Mazatlan, Acapulco and Veracruz (1920), 486 tons, 8 knots, one 6-pr. and two M.G. Transports: Progreso (1907), 1,590 tons, 13 knots, four 6-pr., five others. Oiler: Mexico, 2,559 tons gross.

Nicaragua.—One gunboat: Momotombo, 400 tons, two 3-in. guns.

Paraguay.—Gunboats: Humayta and Paraguay (1931), 636 tons, 17 knots, four 4·7-in., four 3-in. A.A. guns, 2 M., six mines; two older, Capitan Cabral and Tacuari, 120 tons, completed 1910, one 3-in., two 6-prs., 10 knots. One despatch vessel, with 3-in. gun.

Persia (Iran).—Gunboats: Babr and Palang (Italy, 1932), 950 tons, 205 ft. long, 1,900 H.P. (Diesel), 15 knots, two 4-in. and two 3-in. A.A. guns, 2 M. Four motor patrol boats built in Italy (1932): Simorgh, Chahbaaz, Karkas and Chahrokh, 330 tons, 900 H.P. (Diesel), 15 knots, two 3-in. guns, 2 M. Gunboats and patrol vessels are for customs work. Motor boats: Azerbaijan, Gehlani, Mazenderan (built in Italy, 1935), 28 tons, 68½ feet. Training ship: Homay, 700 tons; Shahin, 150 tons, 16 knots, three 1-pr. Tug: Niru.

Peru.—Almirante Grau and Coronel Bolognesi, cruisers, 3,200 tons (Barrow, 1906), two 6-in., eight 3-in., eight maxim, two 18-in. submerged torpedo tubes, 24 knots, modernized 1925. Gunboat: America, 200 tons, 14 knots, two 3-pr. Destroyers: Almirante Guise (*ex*-Lennuk) (1917), 1,400 tons, 35 knots, five 4-in. guns, one 2-pr., two M., nine 18-in. T.T., eighty mines, and Almirante Villar (*ex*-Vambola) (1918), 1,260 tons, 35 knots, four 4-in. guns, two M., one 2-pr., 2 M., nine 18-in. T.T., eighty mines. Submarines R1-4 built in U.S.A. (1926–9), and R5 and R6 authorised, 576/682 tons, 14½/10 knots, one 3-in., four torpedo tubes. One vedette boat, the Napo, 98 tons, built by Yarrow, 1921, three 1·8-in., 12 knots. Gunboats: Amazonas and Loreto (1934), 250 tons, 750 H.P., 15 knots, four 1·5-in., two ·8-in., two M.G. Transport vessel: Rimac, 6,848 tons (gross), 12 knots. Oiler: Pariñas, 2,820 tons (gross), 10 knots.

Philippines.—Two M.T.B.'s, two building.

Poland.—Training ship: Iskra, 500 tons. River monitors: Warszawa, Horodyszcze, Torun, Pinsk (1920), 110 tons, 9 knots, two 4-in., two 3-in. A.A.; Wilno, Krakow (1926), Niedosciagnona, Niezwyciezona (1934), 70 tons, 9 knots, one 3·9-in., two 3-in. A.A. Destroyers: Burza (1931–2), 1,515 tons, 33,000 H.P., 33 knots, four 5·1-in., one 2·9-in. A.A., six 21·7-in. torpedo tubes; Blyskavica (1937), 2,000 tons, 39 knots, seven 4·7-in., two 1·57-in., two triple 21-in. T.T. Three submarine minelayers: Rys, Zbik, and Wilk (1931–2), 964/1230 tons, 1,800/1,200 H.P., 14/9 knots; one 4-in., one 2-pr., six 21·7-in. torpedo tubes, 40 mines. Minesweepers: Jas Kolka, Mewa, Czajka, Rybitwa (1935), 183 tons, 1,040 H.P. (Diesel), 15 knots, one 3-in. gun, 4 M. Czapla, Zuraw, 200 tons, 17 knots, building. Minelayer: Gryf (1938), 2,200 tons, 6,000 H.P. (I.C.), 20 knots, six 4·7-in., four 1·5-in. A.A., two machine-guns, 300 mines. Submarine minelayer: Sep. 1,088/1,525 tons, 5,400 H.P., 20/9 knots, four 1·57-in. guns, twelve 21-in. torpedo tubes. Submarine: Sokol (to replace Orzel) launched, 1941. Some of the above are interned in Sweden. The others are operating with the British, German and Russian Navies.

Portugal.—The minelayer Vulcano (150 tons) (Thornycroft, 1909), 12 knots. Two sloops, about 1,200 tons, sold out of the British Navy: Carvalho Araujo (*ex*-Jonquil) and Republica (*ex*-Gladiolus), 17 knots, two 4-in., two 3-in. A.A., two 3-pr. Destroyer: Tamega (1913–24), 670 tons, 11,000 H.P., 27 knots, one 4-in., two 3-in., two torpedo tubes. Gunboats: Zaire (1919), Diu and Lagos (1932), Faro (1928), 400 tons, 700 H.P., 13 knots, two 3-in., two 3-pr., and there are 10 older ones.

1st class sloops: Afonso de Albuquerque and Bartolomeu Dias (Hawthorn Leslie, 1935), 1,760 tons, 21 knots, four 4·7-in., two 3-in. A.A., four pompoms, two torpedo tubes, one catapult, one aircraft and forty mines. 2nd class sloops: Goncalo Velho and Goncalves Zarco (Hawthorn Leslie, Newcastle, 1933), 1,045 tons, 2,000 H.P., 16½ knots, three 4·7-in., two 1·5-in. A.A. Pedro Nunes (1935) and João de Lisboa (*ex*-Infante Henrique) (1937), 1,080 tons, 17 knots, two 4·7-in. Destroyers: Vouga and Lima (Yarrow's, Scotstoun, 1933), Dao, Tejo and Douro (built by Yarrow's in Portugal, 1935), 1,282 tons, 33,000 H.P., 36 knots, four 4·7-in., three 1·5-in. A.A., two quadruple 21-in. torpedo tubes, twenty mines. Submarines: Delfin, Espardate and Golfinho (Vickers, 1934–5); surface condition, 800 tons, 2,300 H.P. and 16½ knots; submerged condition, 1,000 tons, 1,000 H.P. and 9¼ knots; one 4-in. gun, 2 M., six 21-in. torpedo tubes. Two patrol vessels, 250 tons, 18 knots, and four projected. New construction includes three destroyers, three submarines, six gunboats, three M.T.B.'s, surveying ship, and one tanker.

Rumania.—River monitors: Bucovina (1916), 540 tons, 12 knots, two 4·7-in., two 4·7-in. howitzers, two 3-pr., two 11-pr. A.A.; Ardeal (1905), 440 tons, 10 knots, two 4·7-in., one 3-pr., one 3·5-in. A.A.; Basarabia (1915), 530 tons, 12 knots, two 4·7-in., two 3-pr., two 11-pr. A.A.; Lascar Catargiu, Ioan Bratianu, Milhail Kogalniceanu, Alexandru Lahovari (1907–8), 670 tons, 13 knots, three 4·7-in., two 3-pr., one 3-in. A.A., 2 M.

Destroyers: Regele Ferdinand and Regina Maria (Naples, 1930, Thornycroft's design), 1,785 tons, 38 knots, length 334¾ ft., five 4·7-in., three 2-pr. A.A., two twin 21-in. torpedo tubes, 50 mines. Marasti, Marasesti (*ex*-Italian Nibbio, Sparviero), 1917–18, 1,460 tons, 35 knots, five 4·7-in., four 3-in. A.A., 2 M., two twin 18-in. torpedo tubes, fifty mines.

Seven vedettes (built in 1908), 50 tons, 18 knots, one 3-pr. gun.

Gunboats: Stihi, Lepri Remus, Dumitrescu, Ghiculescu (1916–17, *ex*-French Magnonne, Friponne, Chiffonne, Impatiente), 350 tons, 15 knots, two 3·9-in., 2 M.

Submarines: Delfinul (Quarnaro, Fiume, 1932). Displacement, 640 tons surface, 900 tons submerged, speed 14 knots surface, 9·5 knots submerged, one 4·2-in. gun, six 21-in. torpedo tubes; S929 and S930 building.

There are also five armed motor boats, and seven armed launches.

A submarine depôt ship, Constanta, 1,821 tons, 13 knots, two 4-in. A.A. guns (Fiume, 1930).

Training ship: Mircea (1938), 1,700 tons, 9·5 knots, two 1-pr. Sailing with auxiliary engines.

Minelayers: Admiral Murgescu and Cetetea Alba, 812 tons, 16 knots, two 4-in., two 1·5-in., 135 mines. A number of other craft are projected. Torpedo boats: Naluca, Sborul, Zmeul (1914), 262 tons, 28 knots, two 2·5-in., 4 T.T.

Thailand (Siam).—Gunboats: Mongkut Rajakumarn (1887), 700 tons, 11 knots, two 4·7-in., two 6-pr., three 3-pr.; Srma Monthon (1908), 225 tons, 14½ knots, one 6-pr.; Ratnakosindr (1925), 920 tons, two 6-in., four 3-in. H.A., 12 knots; Sugrib (1900), 580 tons, 11·5 knots, one 4·7-in., five 6-pr., 2 M.; Sukhodaya (Vickers, 1930), 1,030 tons, 13 knots, two 6-in., four 3-in. A.A.; Dhamburi, Sri Ayudhya (Japan, 1938), 2,000 tons, 15½ knots, four 8-in., four 3-in. guns. Destroyer: Phra Ruang (*ex*-British Radiant, 1917), 719 tons, 35 knots, three 4-in. Six 55-ft. Thornycroft M.T.B.'s, 13½ tons, two 18-in. torpedoes, two Lewis guns. Nine torpedo boats built in Italy (1936–37), 460 tons, 32 knots, three 3-in. guns, 4 M., six 18-in. torpedo tubes. Training ships: Chao Phra (1919), 840 tons, 16 knots; Tachin and Maeklong (1937). Submarines: Blai Jumbol, Sinsa Mudr, Machino, Virun, 325 tons, 14·5/8 knots, 1 M., five 21-in. torpedo tubes, built in Japan, 1938. Two minelayers: Bang Rachan and Nong Sarai (1936), Italian built, 368 tons, 13 knots, two 3-in. Three patrol vessels (1936), built in Japan, 110 tons, 18 knots, one 3-in., 4 M., two 18-in. torpedo tubes. Tug: Samet, 165 tons, 9½ knots. Transports: Chang (1902), 850 tons; Amgthong (1918), 15 knots; Pagan, Sichaun, 650 tons. Oiler: Sumui (1936), 1,854 tons, 12 knots. Three fishery protection vessels (1936), 50 tons, 9½ knots, one 1·5-in. Building programme includes two 4,200-ton cruisers, two sloops, four submarines, one minelayer, seven torpedo boats and two patrol boats.

Turkey.—The battle-cruiser Yavouz Sultan Selim (1912) (*ex*-Goeben), 22,734 tons, 27 knots; armament: ten 11-in., ten 5·9-in., eight 3·5-in., four 1·5-in. P.P., 2 M., 1 L., four submerged 19·7-in. torpedo tubes. Light cruisers: Hamidieh (Elswick, 1904), 3,830 tons, speed 22 knots; armament: two 5·9-in., six 3-in., eight 3-in. A.A., two 18-in. torpedo tubes, seventy mines; Medjidieh (Philadelphia, 1903), refitted 1927, 3,300 tons, speed 22 knots; armament: four 5·1-in., two 3-in. A.A., 4 M. Destroyers: Adatepe, Kocatepe (Ansaldo, Italy, 1932), 1,310 tons, 43 knots, four 4·7-in., three 2-pr. A.A. guns, six 21-in. tubes. Tinaztepe and Zafer (Cantiere Navale del Tirreno, Italy, 1932), 1,840 tons, 38 knots, four 4·7-in. guns, three 2-pr. A.A., six 21-in. torpedo tubes. Submarines: Ikindji-in-Uni and Birindjiin-Uni (Fijenoord, Rotterdam, 1928), 433/556 tons, 13¾/9¾ knots, one 3-in., 1 M., six 18-in. torpedo tubes; Dumlupinar (minelayer) (Monfalcone, 1932), 950 tons, 15 knots, 2,400 H.P. surface, 1,200 tons, 9½ knots, 1,400 H.P. submerged, one 4-in. A.A., four torpedo tubes, forty mines; Sakarya (Monfalcone, 1932), 610 tons, 15 knots, 1,500 H.P. surface, 940 tons, 9½ knots, 1,100 H.P. submerged, one 4-in., six 21-in. torpedo tubes; Gur (Cadiz, 1930), 750/960 tons, 20/9 knots, 2,800/1,000 H.P., one 4-in. gun, four 21-in. torpedo tubes; Atilay and Saldiray (1939), 1,028 tons, 19 knots, 4,800 H.P. surface, one 4-in. gun, six 21-in. torpedo tubes, 40 mines. Three motor launches (1931), 32 tons, 34 knots, one 3-in., two torpedoes; four motor launches, 11 knots, 2 M. Torpedo gunboats: Peyk and Berk (1906), 840 tons, 22 knots, two 4-in., four 6-pr., three 18-in. torpedo tubes. Minesweepers: Hizir Reis, Kemal Reis, and Issa Reis, 413 tons, three 3-in., two 3-pr., 14 knots. Minelayer: Yardim (1913), 360 tons, 15 knots, twenty-five mines. Depot ships: Erkin, 9,400 tons gross, 12½ knots; Torghud Reis, 9,842 tons. Building programme includes two 8,000-ton cruisers. Destroyers: Sultan Hisar, Demir Hisar, Muavenet, Gayret, 1,370 tons, 35·5 knots, four 4·7-in. guns, eight 21-in. torpedo tubes. Submarines: Yildiray, 920/1,200 tons, 20/9 knots, 4,800 H.P., one 4-in. gun, six 21-in. torpedo tubes; Oruc Reis, Murap Reis, Ulucali Reis, Burak Reis, 624/856 tons, 1,200/780 H.P., 13·7/8·4 knots, one 4-in. gun, nine 21-in. torpedo tubes. Minelayers: Atak, Dilgitch, 500 tons, 13 knots; Sivri Hisar, Yuzbashi Hakki, 350 tons, 15 knots.

Uruguay.—Torpedo-gunboat (training ship) Uruguay (1910), 1,150 tons, 23 knots, two 4·7-in., four 3-in., six 1-pr., two 18-in. torpedo tubes. Surveying ship Capitan Miranda (1930), 516 tons, 12 knots. Training ship: 18 de Julio, 680 tons, 12 knots. Three coastguard patrols boats: Paysandu, Salto, and Rio Negro, built in Italy, 1935, 150 tons, 1,150 H.P. (Diesel), 16 knots, two 3-in., two machine guns. Armed tugs: Vanguardia (1908), 95 tons, 12 knots, two 1·5-in.; Corsario, 130 tons, 10 knots, two 1·5-in.

Venezuela.—Old gunboats: Mariscal Sucre, 1,125 tons, 13 knots, two 4-in., two 6-pr., six 3-pr.; General Salom (750 tons), one 3-in., four 6-pr., 12 knots; Miranda (200 tons), Brion (150 tons). Armed tug José Felix Ribas, two 6-pr. Armed yacht Maracay. Minelayers: General Soublette, General Urdaneta (1926), 615 tons, 15 knots, two 4-in., one 3-in., 80 mines. A number of other craft are projected.

Yugoslavia.—Submarines Hrabi and Nebojsca (1928), displacement 870 tons surface, 1,146 tons submerged, speed 15 knots surface, 10 knots submerged, mount two 4-in., six 21-in. torpedo tubes. Smeli and Osvetnik (1929), displacement 570 tons surface, 797 tons submerged, speed 14·5 knots surface, 9·25 knots submerged, carry one 4-in., one 2-pr. and six 21-in. torpedo tubes. Old cruiser Dalmacija (*ex*-German Niobe), refitted 1926, 2,370 tons, six 3·4-in., is used as a gunnery and general training ship. There are four *ex*-Austrian river monitors, Vardar, Drava, Sava, Morava, 400–530 tons, mounting two 4·7-in. and smaller guns; eight *ex*-Austrian T.B.'s, 260 tons, 28 knots, two 2·5-in.; two patrol boats, 36 tons; six minelayers (*ex*-German, 1918), 330–512 tons, 15 knots, two 3·9-in., forty mines; five minesweepers, 120 tons, 9 knots; one minesweepers, 78 tons, 17 knots; one seaplane depôt ship, Zmaj (1929), 1,870 tons, 15 knots. Training ship: Jadran (1931), 720 tons, 8 knots; two submarine depôt ships (1895), and auxiliary craft.

One flotilla leader, Dubrovnik (1932), length 371 feet, displacement 1,880 tons, 42,000 S.H.P., speed 37 knots, carries four 5·5-in., two 3·4-in. A.A., six 1·5-in. A.A., two twin 2-pr., two triple 21-in. torpedo tubes and forty mines.

M.T.B.'s: Two Thornycroft (1927), 15 tons, 40 knots, 1 M., two 18 in. torpedo tubes, four depth charges. Eight built at Lursen (1936–37), 60 tons, 34 knots, one 1·5-in. A.A., two torpedo tubes.

Destroyers: Beograd, Zagireb, Ljubljana (1939), 1,190 tons, 38 knots, four 4·7-in. guns, six 21-in. torpedo tubes.

Flotilla leader, 1,875 tons, five 5·5-in. guns, ten 1·57-in. guns, two M.G., six 21-in. torpedo tubes, building at Split.

BRITISH AND FOREIGN FLOTILLAS.

Great Britain.

Name or Number.	Built by.	Completed.	Dimensions.			Number of Screws.	Standard Displacement.	Horse-Power.	Mean Speed on Trial, or expected.	Armament.	Torpedo Tubes.	Complement (War).
			Length (Extreme).	Beam.	Draught.							
				FLOTILLA LEADERS.								
			ft. ins.	ft. ins.	ft. ins.		Tons.		Knots.			
Tribal Class : Number uncertain	Building in Australia											
Ashanti	Denny	1938										
Bedouin		1939										
Eskimo	Vickers, Walker ..	1938										
Mashona		1939										
Matabele ..	Scotts	1939										
Punjabi . ..		1939	..	..	..	..	..	..	..	8 4·7-in. guns 7 smaller.	1 Q. 21"	200
Sikh	Stephen ..	1938										
Somali	Swan Hunter ..	1938	..	36 6	..	2	1870	44,000	36½			
Tartar		1939										
Cossack	Vickers-Armstrongs	1938										
Maori	Fairfields ..	1938										
Mohawk	Thornycroft ..	1938	..	..	..	..	..	..	..	8 4·7-in. guns.	1 Q. 21"	
Nubian												
Zulu	Stephen & Sons	1938										
Inglefield	Cammell Laird	1937	..	34 0	..	2	1530	38,000	6	5 4·7-in. 2 ·5-in. M, 5 smaller.	2 Q. 21"	175
Faulknor	Yarrow ..	1935	343	33 9	8 8	2	1160	38,000	36½			125
Duncan	Portsmouth Dockyard	1933	329	33 0	8 8	2	1400	36,000	35¾	4 4·7-in. 1 3-in. A.A.	2 Q.	175
†Wallace	Thornycroft ..	1919	329	31 11	12 4	2	1480	40,000	36	5 4·7-in. 1 3-in. A.A. 2 2-pr. A.A. 1 M., 4 L.	2 T. 21"	182
Keppel	,, ..	1925										
Broke, *ex*-Rooke	,, ..	1925										
Douglas		1918	332 6	31 9	12 3	2	1530	40,000	36·5	5 4·7-in. 1 3-in. A.A. 2 2-pr. A.A. 1 M., 4 L.	2 T. 21"	182
Campbell		1918										
Mackay, *ex*-Claverhouse ..	Cammell Laird ..	1919										
Malcolm		1919										
Montrose	Hawthorn Leslie	1918										

† Escort vessel armed with **4-in. guns.**

DESTROYERS.

Name or Number.	Built by.	Completed.	Dimensions.			Number of Screws.	Standard Displacement.	Horse-Power.	Mean Speed on Trial, or expected.	Armament.	Torpedo Tubes.	Complement (War).
			Length. (Extreme.)	Beam.	Draught.							
			Feet.	ft. ins	ft. ins.		Tons.		Knots.			
Napier, Milne, Laforey, Kelly, Javelin, Intrepid, Hero, Greyhound, Fearless, Eclipse, Defender, Beagle, & Acasta Classes :												
Napier (leader)	Fairfield	..	..	..	..	..	1935					
Nestor ..												
Nerissa ..	John Brown ..											
Nizam ..												
Noble ..	Denny	Bldg.	..	..	..	..	1920	..	..	4·7 in.	..	..
Nonpareil ..												
Norman ..	Thornycroft ..											
Norseman ..												
Milne (leader)	Scotts	..	..	..	..	..	1693					
Marksman ..												
Marne ..	Parsons (Hulls by Vickers											
Martin ..												
Matchless ..	Stephens	Bldg.	..	..	..	..	1690	..	..	4·7 in.	..	..
Meteor ..												
Musketeer ..	Fairfields											
Myrmidon ..												

Torpedo tubes : T. = triple. Q. = quadruple.

Great Britain—*continued.*

Name or Number.	Built by.	Completed.	Dimensions.			Number of Screws.	Standard Displacement.	Horse-Power.	Mean Speed on Trial, or expected.	Armament.	Torpedo Tubes.	Complement (War).
			Length (Extreme.)	Beam.	Draught.							
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.			
Javelin, etc., Classes —continued.												
Laforey (leader)	Yarrow	Bldg.	..	..	..	..	1935	..	..	4·7 in.	..	..
Lance												
Larne	Cammell Laird											
Lively												
Legion	Hawthorn Leslie		..	..	..	..	1920	..	..	4·7 in.	..	..
Lightning												
Lookout	Scotts											
Loyal												
Kelly (leader)	H'wthorn Leslie	..	..	..	..	..	1695					
Kashmir	John Brown	1939	..	35 0	..	..	1690	40,000	36	6 4·7 in. guns 7 smaller	10 21"	..
Kandahar	Denny											
Kelvin	Fairfied											
Kimberley	Thornycroft											
Kingston	White											
Kipling	Yarrow											
Jackal	John Brown	1939	..	35 0	..	..	1690	40,000	36	6 4·7 in. guns 7 smaller	10 21"	175
Jaguar	Denny											
Juno	Fairfield											
Janus	Swan Hunter											
Javelin	Thornycroft											
Jersey	J. S. White											
Jervis (leader)	H'wthorn Leslie	..	..	..	..	..	1695					
Jupiter	Yarrow	..	..	..	..	..	1690					
Icarus	J. Brown	1937	323	33	8½	2	1370	34,000	36	4 4·7-in guns 7 smaller	10 21"	145
Ilex												
Isis	Yarrow											
Imperial	Hawthorn Leslie											
Intrepid	J. S. White											
Impulsive												
Hero	Vickers (Parsons)	1936	323	33 0	8 6	2	1340	34,000	36	4 4·7 in. 7 smaller	2 Q. 21"	145
Hereward												
Hotspur	Scotts											
Hasty	Denny											
Havock												
Greyhound	Vickers-Armstrong	1936	323	33 3	8 6	2	1335	34,000	36	4·7-in. 2 ·5-in. M. 5 smaller	2 Q. 21"	145
Griffin												
Garland	Fairfields											
Gallant	Stephen & Sons											
Fearless	Cammell Laird	..	..	..	..	..	1375					
Foresight												
Foxhound	Brown	1935	329	33 3	8 6	2	1350	36,000	36	4 4·7-in. 2 ·5-in. M. 5 smaller.	2 Q. 21"	145
Fortune												
Forester	J. S. White											
Fury												
Fame	Parsons/Vickers-Armstrong											
Firedrake												
Eclipse	Denny	1934	329	33 3	8 6	2	1375	36,000	36	4 4·7-in. 2 ·5-in. M. G. 5 smaller.	2 Q. 21"	145
Echo												
Escapade	Scotts											
Electra	Hawthorn Leslie											
Encounter												
Express	Swan Hunter											
Defender	Vickers-Armstrong	1932—1933	317¾ (b.p.)	33	8 6	2	1375	36,000	36	4 4·7-in. 1 3-in. A.A. 7 smaller	2 Q. 21"	145
Diamond												
Decoy	Thornycroft											
Dainty	Fairfield											
Beagle	Brown	1931	323	32½	8½	2	1360	34,000	35½	4 4·7-in., 2 2-pr. 1 M., 4 L.	2 Q. 21"	140
Boadicea	Hawthorn Leslie											
Boreas	Palmers											
Brilliant	Swan, Hunter											
Bulldog												
Achates	Brown	1930	323	32¼	8¼	2	1350	34,000	35¼	4 4·7 in., 2 2-pr., 1 M., 4 L.	2 Q. 21"	140
Active	Hawthorn Leslie	1930										
Antelope		1930										
Anthony	Scotts	1930										
Arrow	Vickers-Armstr.	1930										
Thornycroft Type:												
Amazon	Thornycroft	1927	323	31½	9	2	1350	39,500	37	4 4·7-in., 2 2-pr. 1 M., 4 L.	2 T. 21"	140
Yarrow Type:												
Ambuscade	Yarrow	1927	322	31	8¼	2	1170	33,000	37		5 21"	140

Torpedo tubes: T. = triple. Q. = quadruple.

Great Britain—*continued.*

Name or Number.	Built by.	Completed.	Dimensions. Length. (Extreme)	Dimensions. Beam.	Dimensions. Draught.	Number of Screws.	Standards Displacement.	Horse-Power.	Mean Speed on Trial, or expected.	Armament.	Torpedo Tubes.	Complement (War).
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.			
Admiralty "S" Class:												
Saladin	Stephen	1919	276	26¾	10⅝	2	905	27,000	36	3 4-in., 1 2-pr., 1 M., 4 L.	2 D. 21″	103
Sabre	,,	1918										
Sardonyx	,,	1919										
Scimitar	Brown	1918										
Tenedos	Haw. Leslie	1919										
Thanet	,,	1919										
Thracian	,,	1922										
Stronghold	Scott	1919										
Scout	Brown	1918										
Shikari	Doxford Chatham	1924										
Admiralty "V" Class:												
Vansittart	Beardmore	1919	312	29½	10⅝	2	1120	27,000	34	4 4·7 in., 2 2-pr., 1 M., 4 L.	2 T.	130
Venomous	Brown	1919										
Verity	,,	1919										
Volunteer	Denny	1919										
Veteran	Brown	1919										
Wanderer	Fairfield	1919										
Whitshed	Swan Hunter	1919	312	29½	10⅝	2	1120	27,000	34			
Wild Swan	,, ,,	1919										
Witherington	J. S. White	1919										
Wivern	,, ,,	1919										
Wolverine	,, ,,	1920										
Worcester	,, ,,	1922										
Whitehall	Swan Hunter Chatham	1925										
Walpole	Doxford	1918	312	29½	10⅜	2	1100	27,000	34	4 4in., 1 2-pr., 1 M., 4 L.	2 T.	120
†Wryneck	Palmer	1918										
Windsor	Scott	1918										
Wrestler	Swan Hunter	1918										
†Winchester	J. S. White	1918	312	29½	10·7	2	1100	27,000	34			
†Wolfhound	Fairfield	1918										
Westcott	Denny	1918	312	29½	10·7	2	1100	27,000	34	4 4-in., 1 2-pr., 1 M., 4 L.	2 T. 21″	120
Walker	Denny	1918										
Warwick	Haw. Leslie	1918										
Watchman	Brown	1918										
Winchelsea	J. S. White	1918										
Vanessa	Beardmore	1918										
†Vanity	,,	1918										
Vidette	Stephen	1918										
†Valorous	Denny	1917								4 4-in., 1 2-pr., 1 M., 4 L.	2 T.	120
Vimy (*late* Vancouver)	Beardmore	1918								4 4-in., 1 2-pr., 1 M., 4 L.	1 T. 1 D.	
Vanoc	Brown	1917								4 4-in., 1 2-pr., 1 M., 4 L.	3	
Vanquisher	,,	1917	312	29½	10⅝	2	1090	27,000	34	4 4-in., 1 2-pr., 1 M., 4 L.	2 T.	
Velox	,,	1918									1 T., 1 D.	
†Verdun	Haw. Leslie	1917									2 T.	
Versatile	,,	1918	..	..	..	..	..	..	..		2 T.	
Vesper	Stephen	1918								4 4-in., 1 2-pr., 1 M., 4 L.		
Vivacious	Yarrow	1917									1 T.	
Vortigern	J. S. White	1918									1 D.	
Thornycroft "V" Class:												
Witch	Thornycroft Devonport	1924	312	30¾	10·9	2	1140	30,000	35	4 4·7 in., 2 2-pr., 1 M., 4 L.	2 T.	130
Wishart	Thornycroft	1920										
†Viceroy	,,	1918	312	30¾	10¼	2	1120	30,000	35	4 4-in., 1 2-pr., 1 M., 4 L.	2 T.	120
Viscount	,,											
Admiralty "R" Class:												
Skate	Brown	1917	276–276¼	26¾	10⅜	2	900	27,000	36	3 4-in., 1 2-pr., 1 M., 4 L.	2 D. 21″	98

Torpedo tubes: D. = double. T. = triple.

† Escort Vessels and armed with 4 4-in. guns.

Great Britain—*continued.*

Name or Number.	Built by.	Completed.	Dimensions.			Number of Screws.	Standards Displacement.	Horse-Power.	Mean Speed on Trial, or expected.	Armament.	Torpedo Tubes.	Complement (War).	Fuel. Oil.
			Length (Extreme.)	Beam.	Draught.								
			Ft.	Ft.	Ft.		Tns.		Knts.				
DESTROYERS—													
Town Class (ex U.S.N.):													
Churchill (*ex*-Herndon) ..	Newport News S.B. Co. ..	1919–1920	314 4	31	9·8	2	1,190	25,000	35	4 4-in., 1 3-in. A.A.	4 Trip. 21-in.	122	375
Chesterfield (*ex*-Wood) ..													
Clare (*ex*-Upshur) ..													
Beverley (*ex*-Branch) ..													
Broadwater (*ex*-Mason) ..													
Broadway (*ex*-Hunt) ..													
Burnham (*ex*-Alden) ..													
Cameron (*ex*-Welles) ..	Bethlehem S.B. 6	1919	314·4	31	9·8	2	1,190	27,000	35	4 4-in., 1 3-in. A.A.	4 Trip. 21-in.	122	375
Belmont (*ex*-Aulick) ..													
Bradford (*ex*-McLanahan)													
Burwell (*ex*-Laub) ..													
Buxton (*ex*-Edwards) ..													
Sherwood (*ex*-Rodgers) ..													
Stanley (*ex*-McCalla) ..													
Ramsey (*ex*-Meade) ..													
Reading (*ex*-Bailey) ..													
Ripley (*ex*-Shubrick) ..													
Rockingham (*ex*-Swasey)													
St. Croix (*ex*-McCook) ..													
St. Francis (*ex*-Bancroft)													
Caldwell (*ex*-Hale) ..	Bath I.W.	1919–1921	314·4	31	9·5	2	1,090	24,000	35	4 4-in., 1 3-in. A.A.	4 Trip. 21-in.	122	286
Castleton (*ex*-A. Ward) ..													
Campbeltown (*ex*-Buchanan)													
Lancaster (*ex*-Philip) ..													
Mansfield (*ex*-Evans) ..													
Montgomery (*ex*-Wickes)													
Wells (*ex*-Tillman) ..													
Salisbury (*ex*-Claxton) ..	Mare Island	1919											
Richmond (*ex*-Fairfax) ..	Union I.W. ..	1918											
Leamington (*ex*-Twiggs) ..	New York ..	1919	314·4	31	9·5	2	1,090	24,000	35	4 4-in., 1 3-in. A.A.	4 Trip. 21-in.	122	286
Lincoln (*ex*-Yarnall) ..	Cramp ..	1918											
Hamilton (*ex*-Kalk) ..	Fore River S.B. Co.	1918–1920	314·4	31	9·8	2	1,060	27,000	35	4, 4-in., 1 3-in. A.A.	4 Trip. 21-in.	122	283
Georgetown (*ex*-Maddox)													
Brighton (*ex*-Cowell) ..													
Roxborough (*ex*-Foote) ..													
Newport (*ex*-Sigourney ..													
Niagara (*ex*-Thatcher) ..													
Bath (*ex*-Hopewell) ..	Newport News S.B.6.												
Charlestown (*ex*-Abbot) ..													
St. Albans (*ex*-Thomas) ..													
St. Mary's (*ex*-Doran) ..													
Columbia (*ex*-Haraden) ..													
Newark (*ex*-Ringgold) ..	Union I.W.												
Newmarket (*ex*-Robinson)													
Annapolis (*ex*-Mackenzie)													
St. Clair (*ex*-Williams) ..	Union Plant												
Leeds (*ex*-Connor) ..	Cramp	1918	315·5	30·7	9·5	2	1,020	18,500	30	4 4-in., 1 3-in. A.A.	4 Trip. 21-in.	122	260
Ludlow (*ex*-Stockton) ..													
Lewes (*ex*-Conway) ..	Norfolk							20,000	32				

Great Britain—*continued.*

SUBMARINES.

Name or Number.	Where Built.	Completed.	Dimensions.			No. of Screws.	Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement (War).
			Length (Extreme).	Beam.	Draught.							
			Feet.	Feet.	Feet.		Tons.		Knots.			
Unity Class :												
Utmost	Vickers	1938	180	16·1	12·9	..	540/730	615/825	11¼/10	2 small guns	6	27
Upholder												
Unique												
Unity												
Ursula												
Triton Class :												
Tetrarch	Vickers	Bldg.	..	..	..	..	1,090/1,575	..	..	4-in.	..	..
Talisman	Cammell Laird	Bldg.										
Torbay	Chatham	Bldg.										
Thunderbolt (*ex*-Thetis)	Cammell Laird	1939	265	26½	12	..	1,090/1,575	2,500/1,450	15¼/9	1 4-in. gun	6	53
Triumph												
Trident												
Tribune												
Taku	Cammell Laird	Bldg.										
Truant	Vickers	1939										
Tuna	Scott's	Bldg.										
Tigris	Chatham											
Thames Class :												
Severn	Vickers-Armstrong	1935	345	28	13·7	2	1,850/2,723	10,000/2,500	22¼/10	1 4-in., 2 smaller	..	60
Clyde												
Porpoise Class : *												
Porpoise	Vickers-Armstrong	1933	289	29·8	13·8	..	1,500/2,053	3,300/1,630	15/8¾	1 4-in., 2 smaller	6	55
Rorqual	Vickers	1935	271½	25½	15	2	1,520/2,157	3,300/1,630	15¾/8¾	1 4-in., 2 smaller	6	55
Cachalot	Scott's	1938										
Swordfish Class :												
Sunfish	Chatham	1937	208·7	24	10·5	2	670/960	1,900/1,300	15/10	3-in., 1 smaller	6	40
Seawolf	Scott's	1938	208·7	24	10·5	2	670/960	1,550/1,300	13¾/10			
Snapper	Chatham	1935										
Sealion	Cammell Laird	1934										
Sturgeon	Chatham	1933	202·5	24	10·5	2	640/927	1,550/1,300	13¾/10			
Rainbow Class :												
Rainbow	Chatham	1932	290	29·8	13·8	2	1,475/2,035	4,400/1,320	17½/9	1 4-in., 2 smaller	8	53
Regent	Vickers-Armstrong	1930										
Rover		1931										
Parthian Class :												
Parthian	Chatham	1931	290	29·8	13·7	..	1,475/2,040					
Perseus	Vickers-Armstrong	1930										
Proteus												
Pandora												
Odin Class :												
Olympus	Beardmore	1930	283½	29·8	13·7	..	1,475/2,038	4,400/1,320	17½/9	1 4-in., 2 Lewis	8	53
Osiris	Vickers	1929										
Otus	Vickers	1929										
Oberon Class :												
Oberon	Chatham	1927	270	28	13·2	..	1,311/1,830	2,950/1,350	15/9	1 4-in., 2 Lewis	8	53
Otway	Vickers	1927	275	27·7	13·3	..	1,354/1,872	3,000/1,350	15½/9	1 4-in., 2 Lewis	8	93
L Class :												
L27	Vickers	1926	238½	23½	11·7	..	760/1,080	2,400/1,600	17½/10½	1 4-in., 1 Lewis	4	41
L26	Vickers	1926										
L23	Vickers	1924										
H Class :												
H50	Beardmore	1920	171	15·75	12·5	2	410/500	480/320	13/10½	1 Lewis	4	23
H44	Armstrong	1920										
H43	Armstrong	1919										
H34	Cammell Laird	1919										
H33	Cammell Laird	1919										
H32	Vickers	1919										
H31	Vickers	1919										
H28	Vickers	1918										

* Minelaying submarines.

Great Britain—*continued.*

Name.	Displacement.	Length (Extreme).	Beam (Extreme).	Draught.	Horse-Power.	Where built.	Maker of Machinery.	Date of Launch.	Date of Completion.	Armament.	Speed (knots).	Complement.
		ft. ins.	ft. ins.	ft. ins.								
Hunt Class:												
Atherstone	..	..	..	..	..	Cammell Laird	Cammell Laird	Bldg				
Berkeley .												
Cattistock	..	..	..	..	..	Yarrow	Yarrow					
Cleveland .												
Cotswold .												
Cottesmore												
Eglinton	..	..	..	..	..	Vickers Walker	Parsons					
Fernie	..	..	..	..	..	J. Brown	J. Brown					
Garth												
Hambledon	..	..	..	..	..	Swan Hunter	Wallsend Slipway					
Holderness												
Mendip .												
Meynell .												
Pytchley	..	..	..	..	..	Scotts	Scotts					
Quantock												
Quorn .	..	..	..	..	..	J. S. White	J. S. White					
Southdown												
Tynedale	..	..	..	..	..	Stephens	Stephens					
Whaddon												
SLOOPS.												
Erne	1250	..	..	..	4,300	Furness	Richardson Westgarth	Bldg.	..	6 4-*in.* H.A. 10 smaller		
Ibis												
Egret .	1200	282	37 6	8 4	3,600	J. S. White	J. S. White	1937	1938	8 4-*in.*, 5 smaller	19¼	
Auckland						Denny	Denny	1937	1938			
Pelican						Thornycroft	Thornycroft	1938	1939			
Black Swan	1250	..	..	..	4,300	Yarrow	Yarrow	1939	Bldg.	6 4-*in.* H.A. 10 smaller	19¾	
Flamingo												
Enchantress .	1085	282	37 0	8 6	3,300	J. Brown	J. Brown	1934	1935	4 4·7-*in.* guns and 2 on deposit 4 3-pr.	18¾	125
Stork . .	1100	282	37 0	8 6	3,300	Denny	Denny	1936	1936	6 4·7-*in.* guns 2 3-pr. 5 smaller	18¾	..
CORVETTES.												
58 in No.	..	..	..	..	..	..	..	..	Bldg.	..	..	60
Kingfisher	510	234 b.p.	26 6	6 6	3,600	Fairfield	Fairfield	1935	1935	1 4-*in.* gun 8 smaller	20	..
Mallard												
Puffin .	..	..	..	..	..	Stephen	Stephen	..	1936		20	60
Sheldrake												
Kittiwake	530	234 b.p.	26 6	6 6	3,600	Thornycroft	Thornycroft	..	1937		20	..
Widgeon	..	..	..	..	..	Yarrow	Yarrow	..	1938		20	..
Guillemot												
Pintail	580	..	..	..	..	Denny	Denny		1939			
Shearwater						J. S. White	J. S. White					
SLOOPS.												
Grimsby .	990	266	36 0	7 6	2,000	Devonport	J. S. White	1933	1934	2 4·7-*in.* guns. 1 3-*in.* 12 smaller	16½	100
Leith .						Devonport						
Lowestoft .						Devonport						
Wellington						Devonport		1935	1935			
Londond'ry						Chatham		1934	1935			
Deptford .												
Aberdeen .	990	..	..	..	..	Devonport	Thornycroft	1935	Bldg.	3 4-*in.* 12 smaller		
Fleetwood .						Devonport				4 4-*in.* 12 smaller		
MINE-SWEEPERS.												
Halcyon Class:												
Halcyon	..	..	..	.	..	J. Brown	J. Brown	1934	1934	2 4-*in.* 5 smaller	17	80
Harrier	815	246	33 6	7 3	1,770	Thornycroft	Thornycroft					
Hussar												
Speedwell	..	..	..	..	..	Hamilton	Beardmore	1935	1935			
Niger . .	815	246	33 6	7 7	2,000	J. S. White	J. S. White	1935	1936	2 4-*in.* 9 smaller	17	80
Salamander												
Hebe . .	..	..	..	..	..	Devonport	..	1936	1937	2 4-*in.* 5 smaller	..	..
Sharp-shooter									1937 1937			
Hazard .	..	..	..	..	..	Wm. Gray	..	1937	1938	..	..	..
Gleaner .												

Great Britain—*continued.*

Minesweepers and Sloops

Name.	Displacement.	Length (Extreme).	Beam (Extreme).	Draught.	Horse-Power.	Where Built.	Maker of Machinery.	Date of Launch.	Date of Completion.	Armament.	Speed (knots).	Complement.
		ft. ins.	ft. ins.	ft. ins.								
Halcyon Class—cont.												
Gossamer	815	230 b.p	33 6	7 0	1,750	Hamilton's	Stephen					
Leda .						Devonport	Richardsons, Westgarth	1937	1938	2 *4-in.* H.A. 5 smaller	17	
Seagull												
Franklin	830					Ailsa	Thornycroft	1937	1938	..	17	
Jason .												
Scott .	..					Caledon	Parsons					
Bramble .						Devonport	Barclay Curle					
Britomart .	875					Devonport	Barclay Curle	1938	1939	2 *4-in.*. H.A. 5 smaller	17	..
Speedy . .						J. Hamilton	J. S. White					
Sloops												
Shoreham Class: Repeat Shoreham Class:												
Falmouth.	1060	281 4	35 0	8 3	2,000 P.T. (G.)	Devonport	Hawthorn Leslie	1932	1932	2 *4-in.*, A.A. 4 *3-pr.* 8 L.	16½	100
Milford .							Yarrow					
Weston .							Yarrow		1933			
Bideford .	1105	281 4	35 0	8 0	2,000 P.T. (G.)	Devonport	J. S. White & Devonport	1931	1931	1 *4-in.*, 1 *4-in.* A.A. 4 *3-pr.* 8 L. Fowey 2 *4-in.* H.A. 13 smaller guns	16½	100
Rochester.						Chatham	J. S. White & Chatham	1932	1932			
Fowey .						Devonport	J. S. White & Devonport	1930	1931			
Shoreham.						Chatham	J. S. White & Chatham	1930	1931			
Hastings Class:												
Hastings .	1025	266 4	34 1	9 1	2,000 P.T. (G.)	Devonport	Devonport	1930	1931	1 *4-in.*, 1 *4-in.* A.A. 2 *3-pr.* 8 L. Hastings 2 *4-in.*, 9 smaller	16½	..
Folkestone	1045					Swan, Hunter	Hawthorn, Leslie	1930	1930			
Scarborough						Swan, Hunter	Hawthorn, Leslie	1930	1930			
Bridgewater Class:												
Bridgewater	1045	266 4	34 0	8 6	2,000 P.T. (G.)	Hawthorn Leslie	Hawthorn Leslie	1928	1929	2 *4-in.* A.A. Bridgwater 10 smaller, Sandwich 11 smaller	16½	95
Sandwich												
Arabis Class:												
Lupin† .	1175	267 9	33 6	12 0	2,000 recip.	Simons	Simons	1916	1916	1 *4-in.*, 1 *2-pr.*, 8 L.	16–17	100
Rosemary						Richardson Duck	Blair	1915	1916	1 *4-in.*, 2 *2-pr.* 2 M., 8 L.		
Acacia Class:												
Foxglove .	1165	262 6	33 0	12 6	1,800 recip.	Dunlop Bremner	Dunlop Bremner	1915	1915	2 *4-in.*, 4 *3-pr.* 2 *2-pr.*, 8 L.	16–17	100

† Converted to oil-burning.

Great Britain—*continued.*

MINESWEEPERS, RIVER GUNBOATS.

Name.	Displacement.	Length (Extreme).	Beam (Extreme).	Draught.	Horse-Power.	Where built.	Maker of Machinery.	Date of Launch.	Date of Completion.	Armament.	Speed (knots).	Complement.
MINE-SWEEPERS												
Aberdare . .	710	231 0	28 7	9 0	2,200 recip.	Ailsa	Ailsa	1918	1918	1 *4-in.*, 1 *12-pr.* A.A. Alresford, Caterham, Ross and Saltburn no armament.	16	73
Abingdon .						Ailsa	G. Clark					
Albury . .						Ailsa	Ailsa	1918	1919			
Alresford .						Ailsa	W. H. Allen	1919	1919			
Bagshot . .						Ardrossan Dry Dock Co.	W. H. Allen	1918	1919			
Derby . .						Clyde S.B. Co.	Clyde S.B.Co.	1918	1918			
Dundalk . .						Do.	Do.	1919	1919			
Fermoy . .						Dundee S.B. Co.	Cooper & Greig					
Fareham .						Dunlop, Bremner	Dunlop, Bremner	1918	1918			
Elgin . .						Simons	Simons	1918	1918			
Sutton . .						McMillan	Yarrow	1918	1919			
Saltash .						Murdock & Murray	Do.					
Saltburn . .						Do.	Do.					
Selkirk . .						Do.	D. Rowan	1918	1919			
Ross . .						Lobnitz	Lobnitz	1919	1919			
Widnes . .						Napier & Miller	Rowan	1918	1918			
Harrow .						Eltringham	Wallsend Slipway					
Huntley . .						Do.	Eltringham	1919	1919			
Lydd . .						Fairfield	Fairfield	1918	1919			
Stoke . .						C. Rennoldson	Shields Eng. Co.	1918	1918			
Pangbourne .						Lobnitz	Lobnitz					
Tedworth .	675	231 0	28 0	9 0	1,800 recip.	Simons	Simons	1917	1917	1 *3-in.* A.A.	16	35
Fitzroy . .	800	231 0	28 7	7 6	2,200 recip.	Lobnitz	Lobnitz	1919	1919	1 *3-pr.*	16	86
Kellett . .						Simons	Simons					
AUSTRALIAN MINE-SWEEPERS. Number uncertain	..	..	..	..	..	..	..	Bldg.				
CANADIAN MINE-SWEEPERS. 12 in No. .	..	..	..	..	..	..	..	Bldg.				
RIVER GUN-BOATS.												
Scorpion . .	700	208 9	34 8	5 5	4,500	J. S. White	White	1937	1938	2 *4-in.*; 1 *3·7-in.* Howitzer, 12 smaller	17	..
Robin . .	226	150 b.p.	26 8	3 0	800 recip.	Yarrow	Yarrow	1934	1934		12¾	35
Dragonfly .	585				3,800	Thornycroft	Thornycroft	1938	Bldg.	2 *4-in.*; 1 *3·7-in.* Howitzer, 10 smaller	17	..
Grasshopper								1939	Bldg.			
Sandpiper .	185	160 0 b.p.	30 8	1 10	600 recip.	Thornycroft	Thornycroft	1933	1933	1 *3·7-in.* Howitzer, 1 *6-pr.*, 8 L.	11½	35
Locust . .	585					Yarrow	Yarrow	Bldg.		*4-in.*		
Falcon . .	372	150 0	28 8	4 9	2,250 (G.)	Yarrow	Yarrow	1931	1931	1 *3·7-in.* Howitzer, 2 *6-pr.*, 8 L.	15	55
Gannet . .	310	185 0	29 0	4 0	2,250 (G.)	Yarrow	Yarrow	1927	1928	2 *3-in.* A.A., 8 L.	16	60
Petrel . .								1927	1927			
Seamew . .	262	168 0	27 0	4 0	1,370 (G.)	Do.	Do.	1928	1928		14	60
Tern . .								1927	1927			

Great Britain—*continued.*

RIVER GUNBOATS.

Name.	Displacement.	Length (Extreme).	Beam (Extreme).	Draught.	Horse-Power.	Where built.	Maker of Machinery.	Date of Launch.	Date of Completion.	Armament.	Speed (knots).	Complement.
RIVER GUNBOATS—*cont.*												
Aphis . .	625	237 6	36 0	4 6	2,000 recip.	Ailsa	Ailsa	1915	1915	2 *6-in.*, 1 *3-in.* A.A., 1 *2-pr.*, 8 L.	14	55
Cicala . .						Barclay Curle	Barclay Curle	1915	1916	2 *6-in.*, 1 *3-in.* A.A., 1 *2-pr.*, 8 L.		
Cockchafer .						Do.	Do.	1915	1916	2 *6-in.*, 1 *3-in.* A.A., 8 L.		
Cricket . .						Do.	Do.	1915	1916	2 *6-in.*, 1 *3-in.* A.A., 1 *2-pr.*, 8 L.		
Gnat . .						Lobnitz	Lobnitz	1915	1915			
Ladybird .						Do.	Do.	1915	1916	2 *6-in.*, 1 *3-in.* AA., 1 *2-pr.*, 8 L.		
Moth . .						Sunderland S.B. Co.	N.E. Marine	1915	1916	2 *6-in.*, 1 *3-in.* A.A., 1 *2-pr.*, 8 L.		
Scarab . .						Wood, Skinner	Do.	1915	1915			
Tarantula .						Do.	Do.	1915	1916	1 *6-in.*, 1 *3-in.* A.A., 1 *2-pr.* 8 L.		

Argentine Republic.

Name or Number.	Where Built.	Launched	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel.
			Length. (Extreme.)	Beam.	Draught.								Coal / Oil
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
FLOTILLA LEADERS—													
Cervantes (*ex*-Spanish Churruca)	Cartagena ..	1925	318	31⅝	10½	2	1522	42,000	36	5 4·7 in., 1 3-in. A.A., 4 M	2 triple 21-in.	—	— / 540
Juan de Garay (*ex*-Spanish Alcala Galiano)													
Mendoza ..	J. S. White, Cowes	1928	335	31·8	12¼	2	1466	45,000	36 (La Rioja 39·4 *t.*)	5 4·7 in., 1 3-in. A.A., 2 2-pr., 4 M.	2 triple 21-in.	160	— / 700
La Rioja ..		1929											
Tucuman ..		1929											
DESTROYERS—													
Catamarca	Schichau ..	1911	288·7	27½	10	2	972	28,000	32	3 4-in. 2 1-pr.	4 21-in.	100	— / 220
Jujuy	Germania ..												
Cordoba	Shichau ..	1910	295¼	29·5	10	..	1000	28,000	34·7 *t.*			100	— / 200
La Plata	Germania ..	1911											
San Juan ..	J. Brown ..	1937	323	33	8½	..	1350	34,000	35½	4 4·7 in., 8 smaller	2Q 21-in.	150	450
San Luis ..													
Misiones ..	Cammell Laird	1937	323	33	8½	..	1350	34,000	35½	4 4·7 in., 8 smaller	2Q 21-in.	150	450
Santa Cruz ..													
Buenos Aires	Vickers, Barrow	1937	323	33	8½	..	1350	34,000	35½	4 4·7 in., 8 smaller	2Q 21-in.	150	450
Entre Rios ..													
Corrientes ..													
SUBMARINES—													
Santa Fe	Taranto ..	1931	226¼	21¼	13	2	850 / 1080	3,000 / 1,300	17·5 / 9	1 4·7-in. 1 2-pr. A.A.	8 21-in.	41	—
Salta		1932											
Santiago del Estero		1933											

Torpedo tubes : Q=quadruple.

Brazil.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel.
			Length (Extreme.)	Beam.	Draught.								Coal/Oil
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Greenhalgh	St. W. Rio de Janeiro	Bldg.	360½ w.l.	34½	9 10	2	1500	43,000	36·5	5 5-in. 8 smaller	12 21-in.	190	—/500
Marcilio Dias.. ..													
Mariz E. Barros ..													
Piauhy	Yarrow ..	1908	240 p.p.	23·6	7·5	2	560	8,000	27 (27·1-28.7 on trials)	2 4-in., 4 3 prs.	2 18-in.	75	140/—
Matto Grosso		1908											
Parahyba..		1909											
Rio Grande del Norte		1909											
Santa Catharina ..		1909											
Sergipe		1909											
Maranhao (ex- Porpoise)	Thornycroft..	1913	265·3	26·5	10	2	934	22,500	31	3 4-in., 1 2-pr.	2 dble. 21-in.	..	—/250
SUBMARINES—													
Humayta	Spezia (Ansaldo Fiat)	1927	282	25·6	14	2	1450/1884	4,800/2,200	18·5/10	1 4·7-in. A.A.; 4 M., 20 mines	6 21-in.	55	—/140
Tamoya	Spezia (Orlando)	1937	197½	21	14½	..	620/855	1350/800	14/8	1 3·9-in. 2 M. A.A.	6 21-in.	33	..
Tymbira ..													
Tupy													

Chile.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel.
			Length. (Extreme.)	Beam.	Draught.								Coal/Oil
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Serrano	Thornycroft's	1928	300	29	9	2	1090	28,000	35	3 4·7-in., 1 3-in.	2 triple 21-in.	130	—/340
Orella													
Riquelme													
Hyatt													
Videla													
Aldea													
Almirante Lynch,	White.. ..	1912	320 p.p.	32·6	11·1	3	1850	30,000	31	6 4-in. 4 M.	4 18-in.	190	427/80
Almirante Condell		1913											
SUBMARINES—													
Capitan Thompson	Vickers Armstrong's	1929	275	27·5	14·8	2	1520/1990	2750/1300	15/9	1 4-in.	8 21-in.	54	/200
Almirante Simpson		1929											
Capitan O'Brien ..		1928											
H 1. Gualcolda ..	Fore River, U.S.A.	1915	150·3	15·75	12·3	2	355/470	480/640	13/11	..	4 18-in.	22	—/17·5
H 2. Tegualda ..													
H 3. Rucumilla ..													
H 4. Guale													
H 5. Quidora													
H 6. Fresia													

3 submarines are projected (no money voted).

Denmark.*

Name or Number.	Where built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Speed.	Armament.	Torpedo Tubes	Complement.	Fuel.
			Length (Extreme).	Beam.	Draught.								Coal Oil
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
TORPEDO BOATS.													
FIRST CLASS—													
T4. Glenten ..	Royal Dockyard, Copenhagen	1934	198·9	19·5	7·8	2	285	6,000	27½	2 3·4-in., 2 ·78 M., 2 M.	6 17·7 in.	51	— 40
T5. Hogen													
T6. Ornen													
T3. Laxen		1930	198·9	19·5	7·4	2	281	6,000	27½	2 3-in., 2 ·78 M., 2 M.	8 17·7 in.	51	— 26
T1. Dragen ..		1929											
T2. Hvalen ..		1930											
R4. Havkatten ‡		1919	126·3	13·9	9	2	110	2,000	24·6 *t.*	2 6-pr. A.A.	2 (1 in R2-4)	24	15 —
R5. Sælen ‡ ..		1919											
R3. Nordkaperen ‡		1918											
R2. Makrelen ‡ ..		1918											
S6. Narhvalen † ..		1917											
S5. Havhesten † ..		1917											
S4. Söhunden † ..		1917											
S2. Stören † ..		1916											
S1. Springeren † ..													
P1. Hvalrossen ‡		1913	148·2	16·9	7·5	2	158	3,480	26·2 *t.*	1 3-in., 1 M.	4 18 in.	34	29 —
S3. Söridderen †	Yarrow & Co.	1911	126·3	15	9	2	110	2,000	24·3	2 6-pr. A.A.	1 18 in.	24	15 —
Two in number ..	Copenhagen	Bldg.	279	27·4	8	2	700	21,000	35	2 4-in. 4 1·5-in.	6 21 in.	..	..
SUBMARINES—													
Daphne. D1 ..	Royal Dockyard, Copenhagen	1926	161	16	8·2		305 380	900 400	13·4 7	1 3-in. A.A., 1 ·78 M.	6 18 in.	25	— 16
Dryaden. D2 ..													
Flora. C3 ..	,,	1919	155·7	15·7	9	2	301 369	900 640	14·5 10·5	1 6-pr.	5 18 in.	24	— 13
Bellona. C2 ..													
Rota. C1 § ..	,,	..	133·3	13·4	8	2	181 231	450 340	13·5 9·8	1 6-pr	3 18 in.	14	— 9
Galathea. B12 ..	,,	..											
Triton. B10 ..	,,	1914											
Ran. B9	,,	1915											
Havkalen. E3 ..	,,	1937	155·6	15·3	9·4	2	320 420	600 220	15 8	2 1·5-in.	5 18 in.	20	..
Havfruen. E2 ..	,,	1937											
Havmanden. E1	,,	1936											
Havhornen ..	,,	Bldg.											

* Under the control of Germany. † Used as minesweepers. ‡ Used as patrol vessels.
§ Rota has one deck tube in addition.

France.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel.
			Length. (Extreme.)	Beam.	Draught.								Coal / Oil
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
FLOTILLA LEADERS—													
Volta	Ch. de Bretagne, Nantes	1936	451	41·1	15	2	2,884	92,000	38	8 5·4-in., 2 1·5-in. A.A.	10 21·7 in.	240	..
Mogador	Lorient	1937											
Le Fantasque	Lorient	1934	434½	39⅓	14	2	2,569	74,000 Terrible did 45 knots on trial.	37	5 5·4-in., 4 1·5-in. A.A.	9 21·7 in.	220	— / 650
L'Audacieux													
Le Malin	Ch. de la Mediterranée	1934											
L'Indomptable													
Le Triomphant	Ch. de France												
Le Terrible	Ch. Naval Français												
Vauquelin	Dunkerque	1932	424¼	39	14	2	2,441	64,000	36	5 5·4-in., 4 1·5-in. A.A.	7 21·7 -in.	220	— / 650
Kersaint	Nantes	1931											
Cassard	Nantes	1932											
Tartu	Nantes	1931											
Le Chevalier-Paul	Havre	1932											
Aigle	Dunkerque	1930	423	40	14	2	2,441	64,000	36	5 5·4-in., 4 1·5-in. A.A.	6 21·7 -in.	220	— / 650
Vautour	Havre												
Albatros	St. Nazaire												
Gerfaut	Nantes												
Milan	Lorient	1930	423	40	14	2	2.441	68,000	37	5 5·4-in., 4 1·5-in. A.A.	7 21·7 -in.	220	— / 650
Epervier													
Valmy	Penhoet	1928	427	39	15	2	2,436	64,000	36	5 5·4-in., 4 1·5-in. A.A.	6 21·7 -in.	207	— / 650
Verdun	St. Nazaire	1928											
Vauban	Dunkerque	1930											
Lion	Dunkerque	1929											
Guépard	Lorient	1928											
Leopard	St. Nazaire	1924	416	37½	17¼	2	2,126	55,000	35·5	5 5·1-in.	6 21·7 -in.	206	— / 530
Lynx	,,	1925											
Tigre	Nantes	1924											
DESTROYERS—													
L'Aventurier	Bordeaux	Bldg.	363¼	36¼	10¼	2	1,772	58,000	37	6 5·1-in., 2 1·5-in.	7 21·7 -in.	..	..
L'Opiniatre													
L'Intrepide	La Seyne												
Le Temeraire													
Le Hardi	Loire	1938											
Mameluck													
Epée	Gironde												
Lansquenet													
Casque	La Seyne	Bldg.											
Fleuret													
Le Corsaire													
Le Flibustier													
Forbin	Havre	1928	351·7	32·2	10·2	2	1,378	31,000	33	4 5·1-in., 2 1·5-in. A.A.	6 21·7 -in.	146	— / 300
Frondeur	Caen	1929											
Fougueux	Nantes	1928											
Basque	Maritime	1929											
Bordelais	Bordeaux	1928											
Boulonnais	Caen	1927											
Brestois	Nantes	1927											
L'Alcyon	Bordeaux	1926											
Le Fortune	Caen												
Le Mars	Caen												
La Palme	Nantes												
Mistral	Havre	1925	347	33·0	13·9	2	1,319	33,000	33	4 5·1-in., 2 1·5-in. A.A.	6 21·7 -in.	138	— / 300
Ouragon	Caen	1924											
Simoun	St. Nazaire	1924											
Tempête	Nantes	1925											
Tramontane	Bordeaux	1924											
Trombe	Harfleur												
Typhon	Bordeaux	1925											
Tornade	Bor	1925											
L'Agile	Nantes	Bldg.	295½	30⅓	8½	2	994	28,000	34	4 3·9-in.	4		
Le Fier													
L'Entreprenant													
Le Farouche													
L'Alsacien													
Le Corse													

France—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel.
			Length. (Extreme.)	Beam.	Draught.								Coal Oil
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Torpedo Boats—													
La Melpomène ..	Nantes ..	1935	264·9	26·0	9·2	2	610	22,000	34·5	2 3·9-in., 4 M. A.A.	2 21·7-in.	..	— 90
La Pomone.. ..													
La Flore													
L'Iphigénie ..													
Bombarde	Nantes ..	1936											
Bouclier	Le Trait ..	1937											
La Bayonnaise	Bordeaux ..	1936											
La Poursuivante ..	Dunkerque	1936											
La Cordeliere	Normand ..	1936											
L'Incomprise	Le Trait ..	1937											
Branle-Bas	Normand ..	1937											
Baliste	Dunkerque	1937											
							Surf. Sub.	Surf. Sub.	Surf. Sub.				
Cruiser Submarines—													
Surcouf..	Cherbourg ..	1929	361	29·5	23½	2	2880 3004	7600 3400	18 11	2 8-in. 2 1·5-in. A.A.	14 21-in	150	..
1st Class Submarines													
La Martinique	..	Bdg.	325½	27½	14	2	1605 2100	12,000 —	21 —	1 3·9-in.	..	..	..
Beveziers	Cherbourg ..	1935	302·8	27	16	2	1379 2060	8000 2000	18 10	1 3·9-in., 1 1·5-in. A.A.	11	63	..
Sidi-Ferruch	Brest ..	1937											
Casabianca	Ch. de la Loire.. ..	1935											
Le Glorieux	Cherbourg ..	1932											
Le Centaure	Cherbourg ..	1933											
Le Héros	Brest ..	1933											
Le Conquerant	Brest ..	1932											
Le Tonnant	Loire ..	1934											
L'Espoire	Cherbourg ..	1931											
Protée	La Seyne ..	1930	301·8	27	16	2	1379 2060	6000 2000	17 10	1 3·9-in., 1 1·5-in. A.A.	11	61	— 96
Pégase	St. Nazaire												
Acheron	St. Nazaire	1929 1930											
Argo	Nantes ..												
Acteon													
Pascal	Brest	1928-1929	302·5	27	16	2	1379 2060	6000 2000	17 10	1 3·9-in., 1 1.5-in. A.A.	11	61	— 96
Pasteur													
Henri Poincare	Lorient ..												
Archimede	Caen												
Fresnel..	St. Nazaire												
Monge	La Seyne												
Redoubtable ..	Cherbourg ..	1928	302·5	27	16	2	1384 2080	6000 2000	17 10	1 3·9-in. A.A. 1 1-pr. A.A.	11	63	— 96
Vengeur													
Requin..	Cherbourg ..	1924	257¼	23	17¾	2	974 1415	2900 1800	16 10	1 3·9-in. A.A.	10 21·7	54	..
Morse		1925											
Souffleur		1924											
Caiman		1927											
Dauphin	Toulon ..	1925											
Espadon		1926											
Marsouin	Brest	1924											
Phoque..		1926											

France—*continued.*

Number and Name	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement Surf./Sub.	Horse-Power.	Speed. Surf./Sub.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal/Oil
			Length. (Extreme.)	Beam.	Draught.								
2nd Class Submarines			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
L'Aurore	Toulon		238·3	20·3	12·3	2	893/1170	3[illegible]00/1400	14·5/9	1 3·9-in.	9 21·7	43	..
La Creole	Havre	Bldg.											
La Bayadere													
La Favorite	Le Trait												
L'Africaine													
L'Artemise	Havre	Bldg.											
La Gorgone													
L'Hermione													
L'Andromaque													
L'Armide	Worms												
L'Andromede													
L'Astree													
La Clorinde	Nantes												
L'Antigone													
Ceres	Le Trait	1938	223.5	18·3	11·3	2	600/800	1800/1120	14/9	1 3-in.	9 21·7	48	..
Pallas													
Minerve	Cherbourg	1934	224	17½	13	2	597/800	1300/1230	14/9	1 3-in., 2 M.	9 21·7	..	..
Junon	Havre	1935											
Vénus	Worms	1935											
Iris	Dubigeon	1934											
Orphée	Ch. Normand, Havre	1932	210	20	13	2	558–570/787	1300/1000	14/9	1 3-in., A.A.	6 21·7 2 15·7	43	..
Oréade		1932											
Orion		1931											
Ondine		1931											
La Psyché	Ch. Normand	1932											
La Sybille	Worms												
La Vestale	Schneider												
La Sultane													
Amphitrite	Le Trait	1932	216¼	20	13	2	565–571/787	1300/1000	14/9·2	1 3-in. A.A.	6 21·7 2 15·7	43	..
Antiope	Havre	1932											
Atalante	Schneider	1930											
Amazone	Le Trait	1932											
Diane	Havre	1930											
Méduse		1930											
Argonaute	Schneider	1929											
Aréthuse		1929											
Ariane	Havre	1925	216·5	20	13	2	576/766	1200/1000	14/9	1 3-in. A.A.	7 21·7"	40	..
Danaé		1927											
Eurydice		1927											
Circé	Schneider	1925	204·5	21	12·8	2	552/765	1250/1000	14/9	1 3-in. A.A.	7 21·7	40	..
Calypso		1926											
Thétis		1927											
Naïde	St. Nazaire	1925	210	21	14¾	2	548/744	1300/1000	14/9·5	1 3-in. A.A.	7	39	..
Sirène		1925											
Galatée		1925											
Minelaying Submarines—													
Perle	Toulon	1933	216·5	23·3	13·5	2	669/910	1300/800-1000	12/9	1 3-in., 32 mines	5 21·7	40	..
Diamant		1933											
Rubis		1930											
Nautilus		1928											
Saphir		1929											
Turquoise		1929											
Emeraude	Toulon	Bldg.											

French submarines are divided into two classes. 1st class: All vessels of 900 tons and above in the surface condition 2nd class: All smaller vessels, including the minelayers.

Germany.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Designed Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal / Oil
			Length. (Extreme.)	Beam.	Draught.								
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
(Z 4) Richard Beitzen	Deutsche-Werke, Kiel	1935	374	37	9¼	2	1625	40,000	36	5 5-in. 4 1·5-in.	8 21 in.	252	..
(Z 5) Paul Jacobi .. (Z 6) Theodor Riedel (Z 7) Hermann Schoemann	Germania-Werft, Kiel												
(Z 10) Hans Lody ..	Deschimag, Bremen												
(Z 14) Friedrich Ihn (Z 15) Erich Steinbrinck (Z 16) Friedrich Eckoldt	Blohm & Voss Hamburg												
Z 20 Karl Galster	Deschimag, Bremen	1938	385½	38½	9½	2	1811	..	36	5-in. 4 1·5-in.	8 21 in.	280	..
Z 23–30 Narvik Flotilla	Projected ..	1939											
*Iltis	Wilhelmshaven	1927	304	28¼	8¾	2	800	25,000	34	3 4·1-in. 2 1-pr. A.A.	6 19·7 in. (T.)	125	— 300
*Wolf		1927											
*Tiger													
*Luchs		1928											
*Jaguar													
*Leopard													
*Seeadler	Wilhelmshaven	1926	287¾	27¼	9¼	2	800	24,000	33	3 4·1-in. 2 1-pr. A.A.	6 19·7 in. (T.)	120	— 300
*Greif		1926											
*Kondor		1926											
*Falke		1926											
*Möwe		1926											
TORPEDO BOATS—													
T. 1–20	..	Bldg.	267	28¼	6¼	2	600	25,000	36	1 4·1-in. 1 1·5-in.	6 21 in.	..	..
SUBMARINES—†													
U 1–6, 13–16	Deutsche Werke, Kiel	1935 | 1936	136½	13	12½	2	250 —	700 —	13 7	1 1-pr.	3 21 in.	23	..
U 7–11, 17, 20–24 ..	Germania Werft, Kiel												
U 28–32	Deschimag, Bremen	1936	206⅔	19	13	..	500 —	..	16·5 8	1 3·5-in. 1 1-pr.	5 21 in.	35	..
U 34	Germania Werft, Kiel												
U 37, 38, 43	Deschimag, Bremen	1939	246	20·6	13·5	..	740 —	3200 —	18·5 9	1 4-in. 1 1-pr.	6 21 in.	40	..
U 45–55	Krupp Germania		213	19·7	13·1	2	517 —	2100 —	16·5 8	1 3·5-in. 1 1-pr.	5 21 in.	35	..
U 56–63	Deutsche Werke, Kiel		136·5	13	12·5	2	250 —	700 —	13 7	1 1-pr.	3 21 in.	23	..
U 65–68	Deschimag, Bremen		246	20·6	13·5	2	740 —	3200 —	18·5 9	1 4-in. 1 1-pr.	6 21 in.	40	..
U 69–71	Krupp Germania		213	19·7	13·1	2	517 —	2100 —	16·5 8	1 3·5-in. 1 1-pr.	5 21 in.	35	..

* Classified as torpedo boats in German official lists.

† Neutral sources state that at least 100 U-boats are now operating (1 Dec., 1940.)

Greece.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal / Oil
			Length. (Extreme.)	Beam.	Draught.								
DESTROYERS—			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Hydra Conduriotis	Odero, Genoa	1931	308·8	30·3	10·5	2	1230	30,000	40	4 4·7 in., 4 2-pr. A.A. 40 mines	6 21-in. (T.)	156	— / 630
Spetsai Psara			314·8	30·3	11·3	2	1308						
Thyella Sphendoni	Yarrow	1906	220	20·6	9·0	2	305	6000	30	2 3-in. 1 2-pr.	2 18-in.	70	80 / —
King Georges I. Queen Olga	Yarrow	1938	320	33	8·5	2	1350	34,000	36	4 5-in., 4 1·5-in.	8 21-in.	150	— / 455
Niki Aspis	Stettin (Vulcan)	1906	220	20·6	9·0	2	275	6000	30	2 3-in., 4 6-pr.	2 21-in.	70	90 / —
*Aetos, *Leon, *Panther, *Ierax	Birkenhead	1911	293	27·7	9·6	2	1013	19,750	32	4 4-in., 2 2-pr. (Panther and Aetos, 40 mines)	6 21-in. (T.)	102	— / 260
TORPEDO BOATS—													
Arethousa Doris Aigli Alkyoni	Stettin (Vulcan)	1913	147·8	9	4	2	142	2400	25	2 6-pr.	3 18-in.	..	25 /
‡Pergamos ‡Proussa ‡Kios ‡Kyzikos ‡Kydonia	Fiume Monfalcone	1914	178·4	18·8	5	2	237	5000	28½	1 11-pr.	2 18-in.	25	21 / 31
SUBMARINES—							Surf. / Sub.		Surf. / Sub.				
Katsonis Papanicolis	Schneiders, Harfleur Ch. de la Loire, Nantes	1926	203¾	17·7	12·3	2	567 / 760	1300 / 1000	14 / 9·5	1 4-in., 1 2-pr. A.A.	6 21-in.	30	..
Nereus Proteus Triton Glaucos	Ch. de la Loire, Nantes Ch. de France, Caen	1927 1927 1928 1928	226½	18¾	12·6	2	689 / 945	1500 / 1200	14 / 9·5	1 4-in., 1 2-pr. A.A.	8 21-in.	42	..

* Reconstructed by Messrs. J. S. White & Co., Cowes, 1924–25. ‡ Surrendered Austrian torpedo-boats employed on police duties. 2 destroyers and 2 submarines are projected.

Italy.

Name or Number.	Where built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal / Oil
			Length. (Extreme.)	Beam.	Draught.								
FLOTILLA LEADERS—			Feet.	Feet.	Feet.		Tons.		Knots				Tons.
U. Vivaldi A. Usodimare	Genoa (Odero)	1929 1929	353	33·6	10·5	2	1628	50,000	38	6 4·7-in. (in pairs) 4 1·5-in. A.A. Carry mines	6 21-in. (T.)	185	— / 600
L. Tarigo L. Malocello	Genoa (Ansaldo)	1928 1929											
L. Pancaldo A. Da Noli	Riva Trigoso (Cant. Navali)	1929 1929											
E. Pessagno N. Da Recco	Ancona (Cant. Navali)	1929 1929											
N. Zeno G. Da Verazzano A. da Mosto A. Pigafetta	Fiume	1928 1928 1929 1929											
Leone Pantera Tigere	Ansaldo	1923 1924 1924	372	34	8·8	2	1525	42,000	34	8 4·7-in. (in pairs), 2 3-in. A.A., 60 mines.	6 18-in. (T.)	210	— / 350
Augusto Riboty Carlo Mirabello	Ansaldo	1915 1914	340	32	9·8	2	1382	35,000	35	8 4-in., 4 2-pr. A.A., 100 mines.	4 18-in. (D.)	150	— / 344
DESTROYERS—													
Camicia Nera Ascari Corazziere Geniere Aviere	Odero-Terni Orlando	1938	350	33·4	10·9	2	1620	48,000	39	4 4·7-in. 4 1·5-in. A.A.	6 21-in.	170	..

Italy—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Standard Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal/Oil
			Length. (Extreme.)	Beam.	Draught.								
DESTROYERS—*Contd.*			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Carabiniere Lanciere	Cartieri Dell' Tirreno Riva Trigoso	1938	350	33·4	10·9	2	1620	48,000	39	4 4·7-in. 4 1·5-in. A.A.	6 21-in.	170	..
Granatiere Bersagliere	Cartieri Navali Rivniti Palerino	1938	350	33·4	10·9	2	1620	48,000	39	4 4·7-in. 4 1·5-in. A.A.	6 21-in.	170	..
Fuciliere Alpino	Cantieri Navali di Ancona	1938	350	33·4	10·9	2	1620	48,000	39	4 4·7-in. 4 1·5-in. A.A.	6 21-in	..	..
*Lira *Lupo *Lince *Libra	Cantiere Naval del Quarnaro Fiume	1937 1937 1937	267	26	7·9	2	679	19,000	34	3 3·9-in. 6 1·5-in.	4 18-in.	94	..
*Clio *Calliope *Calipso *Circe	Ansaldo, Genoa	Bldg.	267	26	7·9	2	679	19,000	34	3 3·9-in. 6 1·5-in.	4 18-in.	94	..
*Alcione †*Airone *Ariel *Aritusa	Ansaldo, Genoa	1938	267	26	7·9	2	679	19,000	34	3 3·9-in. 6 1·5-in.	4 18-in.	94	..
*Polluce *Partenope *Pleiade *Pallade	Naples ..	1937	267	26	7·9	2	679	19,000	34	3 3·9-in. 6 1·5-in.	4 18-in.	94	..
L. Oriani V. Alfieri Cr. Carducci	Orlando.	1936	343	33½	10	2	1498	48,000	39	4 4·7-in. 4 1·5-in A.A. carry mines	6 21-in.	157	..
Aldebaran Altair Andromeda Antares *Canopo *Cassiopea *Castore *Cigno *Sagittario	Ansaldo Ancona Fiume	1936	267	27	7·6	2	652	19,000	34	3 3·9-in 6 1·5-in. A.A.	4 18-in.	..	..
*Centauro *Climene Sirio Perseo	Ancona Fiume	1935 1935	269	27	7·2	2	652	19,000	34	3 3·9-in. 6 1·5-in. A.A. guns	4 18-in.	..	..
Grecale Libeccio Scirocco	Ancona Ancona Genoa	1934 1934	350	33½	10	2	1449	44,000	38	4 4·7-in., 4 1·5-in. A.A.	6 21-in.	156	— 600
Dardo Strale Freccia Saetta	Odero, Sestri Pozente Cant. Navale di Tirreno, Sestri Levante	1930 1931 1932	315	32	9·5	2	1206	44,000	38	4 4·7-in. 4 M. A.A. 2 1·5-in. A.A.	6 21-in. (T.)	156	— 225
Folgore Lampo Baleno Fulmine	Cantieri Partenopei, Naples Quarnaro Yard, Fiume	1931	315	30·5	10	2	1220	44,000	38	4 4·7 in. 4 M. A.A. 2 1·5-in. A.A.	6 21-in. (T.)	150	oil
Borea Ostro Aquilone Turbine Nembo Euro	Odero, Genoa Genoa Docks Co.	1927 1928 1927 1927 1927 1927	307½	30	9·5	2	1073 1092	35,000	36	4 4·7-in., 3 M., 52 mines 2 1·5-in. A.A.	6 21-in. (T.)	140	— 340
N. Sauro C. Battisti D. Manin	Odero Quanaro, Fiume	1926 1926 1925	295½	30·2	19·5	2	1058	32,000	35	4 4·7-in., 3 2-pr. A.A. 3 M., 52 mines	6 21-in. (T.)	140	— 340
Francesco Crispi Quintino Sella	Naples (Pattison)	1925 1925	278·6	28·2	8·6	2	935	36,000	35	4 4·7-in., 2 2-pr. A.A. 2 M., 40 mines	2 dbl. 2 1-in.	106	— 200
*Giuseppe Sirtori *Vicenzo Orsini *Francesco Stocco *Giovanni Acerbi		1916 1917 1916 1916	237½	24	9·0	2	669	15,000	32–33·8	6 4-in., 2 2-pr. A.A. 2 M.	4 18-in. (D.)	100	— 150
E. Cosenz Giacomo Medici G. La Farina Nicola Fabrizi Angelo Bassini Giacinto Carini G. La Masa	Genoa (Odero)	1918 1917 1918 1917 1917 1917 1917	237½	24	7·9	2	635	15,500	31–34	4 4-in., 2 3-in., 2 M. 10 mines.	4 18-in. (D.)	100	— 150

* Designated torpedo boats in Italian official lists.

† Two vessels of this class have been sunk.

Italy—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions. Length. (Extreme.)	Beam.	Draught.	Number of Screws.	Standard Displacement	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal / Oil
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—*contd.*													
Fratelli Cairoli .. Antonio Mosto .. Giuseppe Abba .. Rosalino Pilo	Naples (Pattison) Genoa (Odero)	1914	239	24	8·8	2	615	14,500	30	5 4-in., 2 2-pr. A.A. 2 M.	4 18-in. (D.)	71	— / 150
*Simone Schiaffino .. *Giuseppe Dezza .. *Giuseppe Missori .. *Gen. A. Cantore ..	Genoa (Odero)	1914 1914 1915	236	24	8·8	2	615	13,500	30	5 4-in., 2 2-pr. A.A. 2 M.	4 18-in.	71	— / 150
*Gen. A. Chinotto .. *Gen. A. Papa .. *Gen. A. Cascino .. *Gen. M. Prestinari *Gen. C. Montanari		1921 1922	241⅓	24	7·9	2	635	18,000	30	3 4-in., 2 3-in. A.A. 2 M.	4 18-in. (D.)	100	— / 150
Audace (*ex*-Japanese Kawakaze)	Yarrow ..	1917	287	27·5	8·3	2	628	21,500	34·5	7 4-in., 2 M.	4 18-in. (D.)	111	— / 252
Solferino .. .. S. Martino, Curtatone Confienza, Castelfidardo, Calatafimi, Monzambano ..	Leghorn (Orlando)	1921 1922 1923	269 283½	26·5	8·6	2	860 966	22,000	32–33·5	4 4-in., 2 3-in. A.A., 2 M., 24 mines	4 18-in. (D.)	115	— / 170
TORPEDO BOAT—													
‡Albatros	Orlando ..	1934	231⅛	22½	6	2	340	4,000	24·5	2 4-in. 4 1·46-in.	2 17·7in.	..	..
SUBMARINES—													
Saint Bon .. .. Cagni .. .. .. Millo .. .. .. Caracciolo	Monfalcone	Bldg.	285	25·5	17·2	2	1461 / —	4600 / —	18 / 8·9	2 3·9-in., 4 M. A.A.	14 18-in.	..	..
M. Bianchi .. .. L. Torelli .. .. A. Malaspina .. M. F. Baracca .. G. Marconi .. .. L. da Vinci	La Spezia ..	1939 1940 1940 1940 1939 1939	247	22·5	15·5	2	1036 / —	3600 / —	18 / 8·5	1 3·9-in., 4 M. A.A.	8 21-in.	60	..
A. Bagnolini .. .. R. Tarantini .. .. R. Giuliani	Taranto ..	1939 1940 1939	250	23	13·8	2	1030 / —	3500 / —	18 / 8·5	1 3·9-in., 4 M. A.A.	8 21-in.	60	..
Nani .. .. .. Marcello .. .. Barbarigo .. .. Veniero .. .. .. Provana .. .. .. Dandelo .. .. .. Morosini .. .. Mocenigo .. .. Emo	Adriatico ..	1937 1938 1938 1938 1938 1937 1938 1937	239½	23·5	15·5	2	941	3,000	17 / 8·5	2 3·9-in. 2 M. A.A.	8 21-in.	..	..
Brin .. .. .. Guglielmotti	Tosi	1938	231·4	22½	13½	2	896	3,000	17 / 8·5	1 3·9-in. 4 A.A.	8 21-in.	..	..
Cappellini .. .. Faa di Bruno ..	Spexia ..	1939	238	23·5	15	2	950	3,000	17 / —	2 3·9-in., 4 M.	8 21-in.	..	..
Adua .. .. .. Alagi .. .. .. Aradam	Adriatico ..	1936	19	21	14·4	2	620 / 844	1350 / 800	14 / 8·5	1 3 9-in. 2 M.	6 21-in.	40	..
Ascianghi	Orlando ..												
Axum	Adriatico ..												
Dagabue .. .. Dessie	Tosi												
Gondor .. .. .. Neghelli	Orlando ..												
Uarsheich	Tosi												
Scire .. .. .. Tembien .. .. Durbo .. .. .. Lafole .. .. .. Beilul	Orlando ..	1938											

* Designated torpedo boats in Italian official lists.

‡ Submarine chaser.

Italy—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Standard Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel.
			Length. (Extreme.)	Beam.	Draught.								Coal/Oil
SUBMARINES—*contd.*			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Argo.. Velella	Adriatico ..	1936	206	22·6	10·5	2	676/901	1350/800	14/8	1 3·9-in. 2 M.G.	6 21-in.	40	..
Perla Diaspro Gemma Berillo Turchese Corallo	Adriatico ..	1936	197	21	14·4	2	620/844	1350/800	14/8·5	1 3·9-in. 2 M.	6 21-in.	40	..
Malachite Ambra Iride.. Onice	Orlando ..	1936	197	21	14·4	2	620/844	1350/800	14/8·5	1 3·9-in. 2 M.	6 21-in.	40	..
Atropo † Zoea † Foca †	Tosi	1937	266⅔	23½	12⅓	2	1190/1550	2880/1300	17/8	1 3·9-in. 2 M. 30 mines	6 21-in.	60	..
Calvi † Finzi † Tazzoli†	Spezia ..	1935	275	25·5	13·2	2	1332/1965	4400/1800	17/8·75	2 4·7 in. 4 M, 14 mines	8 21-in.	60	..
Diamante.. Smeraldo.. Topazio Zaffiro & Amestista Sirena, Nereide, Galatea Ondina	Tosi .. Fiume .. Orlando .. Monfalcone	1933	197	21	12	2	590/787	1,350/800	14/8·4	1 3·9-in. 2 M.	6 21-in	..	..
Archimede, Ferraris	Taranto ..	1934	231½	22½	13	2	880/1231	3,000/1,200	17/8·5	1 3·9-in. 2 M.	8 21-in.		..
Glauco † .. Otaria † ..	Monfalcone	1934	240	23½	14½	2	860/1167	3,000/1,040	17·0/8·5	2 3·9-in. 2 M.	8 21-in.	..	..
Pietro Micca † ..	Taranto ..	1935	296	25½	17·5	2	1371/1883	3,000/1,500	15·5/8·5	2 4·7-in., 4 M. 40 mines	6 21-in.	..	..
Squalo, Narvalo, Delfino, Tricheco	Cantiere N., Triestino	1930	229	19	14·5	2	810/1077	3,000/1,400	16·5/9	1 4-in. 2 M.	8 21-in.	64	..
Argonauta, Fisalia, & Medusa .. Jalea & Jantina .. Serpente & Salpa ..	Cantiere N., Triestino Odero-Terni Taranto	1931 1932	201·8	18·5	13	2	599/778	1,200/800	14/8·5	1 4-in. 2 M.	6 21-in.	..	..
Santorre Santarosa Ciro Menotti ..	Ansaldo ..	1929	229	19	15·5	2	815/1078	3,000/1,300	17·5/9	1 4-in. 2 M.	8 21-in.	50	..
Fratelli Bandiera .. Luciano Manara ..	Monfalcone	1929											
Luigi Settembrini .. Ruggiero Settimo ..	Taranto ..	1930					797/1134	3,000/1,400					
E. Fieramosca ..	Taranto (Tosi)	1930	277	27	16·8	2	1340/1760	5,500/2,000	19/10	1 4·7-in. 4 M.	8 21-in.	66	—/80
M. Bragadino .. F. Corridoni ..	Taranto (Tosi)	1929 1930	233	18·6	14	2	802/1051	1,500/1,000	14/8	1 4-in., 2 M. 24 mines	4 21 m.	..	—/41
Ballila .. A. Sciesa.. E. Toti .. D. Millelire ..	Spezia, Ansaldo	1927 1928 1928 1927	287	25·6	13·5	2	1368/1874	4,400/2,200	18·5/9	1 4·7-in. 4 M. 16 mines	6 21-in.	66	—/140
V. Pisani.. M. Colonna .. Da. Geneys .. G. Bausan ..	Montfalcone, Trieste	1927 1927 1928 1928	223	18·7	13·8	2	791/1040	3,000/1,000	17·5/9	1 4-in. 2 M.	6 21-in.	35	—/48
G. Mameli .. P. Capponi .. T. Speri .. G. Da. Procida ..	Taranto ..	1926 1927 1928 1928	212	21·5	13	2	770/994	3,000/1,000	17/9	1 4-in. 2 M.	6 21-in.	35	—/48
X 2, 3	Ansaldo ..	1916	139·9	18	11	2	390/460	650/360	8/6	1 3 in. A.A. 1 M., 18 mines	2 18-in.	..	—/8
H 1, 2, 4, 6, 8	Vickers ..	1917	150·3	15·8	12	2	336/466	620/480	13/10	1 3-in. A.A. 1 M., H1, 4, and 6 only	4 18-in.	22	—/18

† Minelayers. About 14 submarines projected.

Japan.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Compliment.	Fuel.
			Length (Extreme.)	Beam.	Draught.								Coal / Oil
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS:													
FIRST CLASS—													
Amatsukaze	Maizuru	1939-1940	356	33·3	9	2	1500	38,000	34	6 5-in.	8 21-in.		
Tokitsukase	Uraga												
Arashi	Maizuru												
Urakaze	Fujinagata												
Hagikaze	Uraga												
Nowake	Maizuru												
Yukikaze	Sasebo												
Kuroshio	Fujinagata												
Oyashio	Maizuru												
Natsushio	Fujinagata												
Hatsukaze	Kawasaki												
Hayashio	Uraga												
Arashio	Kawasaki	1937-1938	356	33·3	9	2	1500	38,000	34	6 5-in.	8 24-in.	200	..
Oshio	Maizuru												
Mitsushio	Fujinagata												
Asagumo	Kawasaki												
Minegumo	Fujinagata												
Kasumi	Uraga												
Yamagumo	Fujinagata												
Natsagumo	Sasebo												
Asashio	Maizuru												
Arare	Maizuru												
Kagero	Maziuru												
Shiranuhi	Uraga												
Isokaze	Sasebo												
Yudachi	Sasebo	1935-1936	336	31·8	9·1	2	1368	37,000	34	5 5-in. 2 M.G.	8 21-in.	200	— / 400
Harusame	Maizurn												
Samidare	Uraga												
Umikaze	Maizuru												
Yamakaze	Uraga												
Kawakaze	Sasebo												
Suzukaze	Uraga												
Murasame	Sasebo												
Shigure	Uraga												
Shiratzuyu	Sasebo												
Hatsushima	Uraga	1933-1934	338	32·7	8·8	2	1368	37,000	34	5 5-in. guns 2 M.	9	200	— / 400
Ariake	Kawasaki												
Yugure	Maizuru												
Wakaba	Sasebo												
Nenohi	Uraga												
Hatsuhara	Sasebo												
Oboro	Sasebo	1929-1932	371·5	34	10·7	2	1700	40,000	34	6 5-in., 2 M.	9 21-in.	200	— / 420
Akebono	Fujinagata												
Sazanami	Maizuru												
Ushio	Uraga												
Akatsuki	Sasebo												
Hibiki	Maizuru												
Ikazuchi	Uraga												
Inazuma	Fujinagata												
Sagiri	Uraga	1929	371·5	34	10·7	2	1700	40,000	3	6 5-in., 2 M.	9 21-in.	197	— / 420
Asagiri	Sasebo	1929											
Yugiri	Maizuru	1930											
Amagiri	Tokyo	1930											
Shikinami	Maizuru	1929											
Ayanami	Fujinagata	1929											
Fubuki	Maizuru	1927											
Shirayuki	Yokosuka	1928											
Hatsuyuki	Maizuru	1928											
Murakumo	Fujinagata	1928											
Shinonome	Sasebo	1927											
Usugumo	Ishikawa-jima (Tokyo)	— 1927											
Shirakumo	Fujinagata	1927											
Isonami	Uraga	1927											
Uranami	Sasebo	1928											

Japan—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel.
			Length (extreme).	Beam.	Draught.								Coal / Oil
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Destroyers—*contd.*													
First Class—*contd.*													
Minadzuki	Uraga	1926	320 b.p.	30	9·8	2	1315	38,500	34	4 4·7-in., 2 M. A.A.	6 21-in.	148	— / 400
Fumitsuki	Fujinagata	1926											
Nagatsuki	Ishikawajima	1926											
Kikudzuki	Maizuru	1926											
Mikadzuki	Sasebo	1926											
Mochidzuki	Uraga	1927											
Yudzuki	Fujinagata	1927											
Yayoi	Uraga	1924, 25											
Udzuki	Ishikawajima	1925											
Mutsuki	Sasebo	1924, 25											
Kisaragi	Maizura	1925											
Satsuki	Fujinagata	1925											
Oite	Uraga	1924, 25	330 b.p.	30	9·6	2	1270	38,500	34	4 4·7-in., 2 M. A.A.	6 21-in.	148	— / 400
Hayate	Ishikawajima	1925											
Yunagi	Sasebo	1924, 25											
Kamikaze Asakaze	Nagasaki	1922											
Harukaze Matsukaze Hatakaze	Maidzura	1922–24											
Asanagi	Fujinagata	1924											
Sawakase			320 b.p.	29·25	9·5	2	1215	38,500	34	4 4·7-in. 2 M. A.A.	6 21-in.	149	— / 400
Okikase, Shimakase, Nadakase, Yukase, Hakase, Minekase	Nagasaki	1919–22											
Namikase, Numakase, Nokase, Tashikase, Shiokase, Hokase, Yakase, Akikase	Maidzuru Mitsubishi, Kawasaki, Maidzuru	1926–22											
Second Class—													
Wakatake Kuretake	Kawasaki, Kobe	1922	275 b.p.	26·5	8·3	2	820	21,500	31·5	3 4·7-in., 2 M. A.A.	4 21-in.	110	— / 250
Fuyo Karukaya	Fujinagata	1922, 23											
Asagao Yugao	Ishikawa-jima	1922–23											
Sanaye	Uraga	1923											
Yanagi, Momo	Sasebo	1916–18	275·0 b.p.	25·3	7·9	2	755	16,000	31·5	3 4·7 in., 2 M.	6 18-in.	109	92 / 212
Hinoki	Maidzuru												
Kaki	Kawasaki	1917–19	275·5 b.p.	26	8	2	770	21,500	31·5	3 4·7 in., 2 M. A.A.	4 21-in.	80	— / 290
Kuri	Kure												
Nire, Tsuga	Ishikawa-jima												
Hagi	Uraga	1920–1922	275·5 p.p.	26	8	2	770	21,500	31·5	3 4·7 in. 2 M., A.A.	4 21-in.	80	— / 290
Susuki, Yomogi Sumire	Ishikawa-jima												
Hishi, Hasu	Uraga,												
Tade, Fuji	Fujinagata,												
Aoi, Kiku Tsuta, Ashi,	Kawasaki												
Torpedo Boats—													
Chidori	Maizuru	1933	254	24	6	2	527	7000	26	3 4·7 in.	2 21-in.	..	..
Manazuru	Fujinagata												
*Tomazuru	Maizuru	1933											
Hatsukari	Fujinagata												
†Kawasemi	Kawasaki	1908	135	15½	7·2	1	96	1200	23	1 1·85-in., 1 1·5-in.	3 14-in.	41	18 / —
Otari	Maizuru	1935	263	26	6¾	2	595	9000	28	3 4·7-in. 1 M.G.	3 21 in.	..	..
Hyodori	Ishikawa-jima												
Hayabusa	Yokohama												
Kasasagi	Osaka												
Kari	Mitsubishi												
Sagi	Harima												
Hato	Ishikawa-jima												
Kiji	Mitsui Tama												

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* Capsized in 1934 but has been repaired and put into commission again.

† *ex*-Chinese Hu Ngo.

Japan—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Coal/Oil
			Length (extreme).	Beam.	Draught.								
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Submarines—													
I68	Kure	1933	331	27	13	2	Surf./Sub. 1400/—	6000/—	20/—	1 3·9 in.	6 21-in.	60	..
I69	Kobe	1934											
I70	Sasebo												
I71	Kawasaki												
I72 and I73	Kawasaki Mitsubishi	1935								1 4.7-in.	6 21-in.	60	..
I74 and I75	Sasebo Mitsubishi	1936											
I9–I24	..	1939	344	29·9	14·4	2	1950/2600	6000/—	17/—	2 5·5-in.	4 21-in.	60	..
I8	Kawasaki	1935	344	29·9	14·4	2	1950/2500	6000/1800	17/9	2 5·5-in.	4 21-in.	60	..
I7	Kure												
I6	Kawasaki	1934	320	30	15·7	2	1900/2500	6000/1800	17/9	1 5-in. 1 seaplane	6 21-in.	60	..
I5	Kawasaki												
I65	Kure	1931	321	26·9	15·9	2	1638/2100	6000/1800	19/9	1 4-in. 1 M.	6 21-in.	70	..
I66	Sasebo												
I67	Kobe												
I61	Mitsubishi	1929	320¼	25·7	16	2	1635/2100	6000/1800	21/7·9	1 4·7-in.	6 21-in.	56	—/255
I62	Kobe	1928											
I64	Kure	1929											
I4	Kawasaki	1929	320	30·2	15·7	2	1955/2480	6800/1800	17/9	2 5·5-in. 1 M.	6 21-in.	61	—/520
I1, I2, I3	Kawasaki	1926											
†I121 *ex* I21	Kawasaki	1927	279½	24·6	14	2	1142/1470	2400/1200	14/9·5	1 5·5-in.	4 21-in.	45	..
†I122 *ex* I22		1928											
†I123 *ex* I23		1928											
†I124 *ex* I24		1928											
I53	Kure	1927	331¼	26	16	2	1635/2100	6000/1800	21/7–9	1 4·7-in.	8 21-in.	56	—/255
I55	Kure	1927											
I56	Kure	1929											
I54	Sasebo	1927											
I63	Sasebo	1928											
I60	Sasebo	1929											
I59	Yokosuka	1929											
I58	Yokusuka	1928											
I57	Kure	1929											
Ro. 33	Kure	1934	239½	22	10·5	2	700	1200	16/—	1 3·15-in. A.A.	4 21-in.	..	..
Ro. 34	Mitsubishi	1935											
Ro. 31	Mitsubishi	1927	243½	20	12·4	2	655/1000	1200/1200	13/10	1 4·7-in. A.A.	4 21-in.	43	—/75
Ro. 65	Mitsubishi	1926	250	24·2	12·4	2	988/1300	2400/1800	16/10	1 3·15-in. A.A., 1 M.	6 21-in.	47	—/75
Ro. 66	Mitsubishi	1927											
Ro. 67	Mitsubishi	1927											
Ro. 68	Mitsubishi	1925											
Ro. 64	Mitsubishi	1925											
Ro. 63, 62, 61	Mitsubishi	1924											
Ro. 60	Mitsubishi	1923											
I. 51 ‡	Kure	1924	300	28·7	15	2	1390/2000	6000/1800	19/7–9	1 4·7-in.	8 21-in.	60	—/190
I. 52		1925	330	25	16·8								
Ro. 32, 30	Kawasaki Kawasaki	1924 1923	243·5	20	12·4	2	655/1000	1200/1200	13/10	1 4·7-in.	4 21-in.	43	—/75
Ro. 28	Sasebo	1923	243·5	20·1	12	2	746/1000	2600/1200	16/10	1 3·15-in. 1 3-pr.	4 21-in.	45	—/75
Ro. 27	Yokosuka	1924											
Ro. 26	Sasabo	1922											
Ro. 57	Kure	1923	250	23·5	13	2	889/1082	2400/1200	17/10·5	1 3·15-in. 1 3-pr.	4 21-in.	65	—/76
Ro. 58, 59	Yokosuka	1922											
Ro. 56, 55	Mitsubishi	1922	231·5	23·5	13	2	893/1082	2400/1200	17/10·5	1 3·15-in. H.A., 1 3-pr.	6 18-in.	65	—/76
Ro. 53	Mitsubishi	1921											
Ro. 51	Mitsubishi	1920											

† Fitted for minelaying. ‡ Carries small seaplane.

Netherlands.

Name or Number.	Where built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-power.	Maximum speed.	Armament.	Torpedo Tubes	Complement.	Fuel.
			Length. (Extreme.)	Beam.	Draught.								Coal/Oil
			Feet.	Feet.	Feet.		Tons.		Knots				Tons
Destroyers—													
*Banckert ..	Burgerhout	1929	321·5	31	9·8	2	1316	31,000	34	4 4·7-in., 1 3-in. A.A., 4 1-pr., 4 M. 1 seaplane 24 mines	6 21-in.	126	—/300
*Van Nes ..	Rotterdam	1930											
*Witte de With	Rotterdam	1928											
Van Ghent	Flushing	1926	321·5	31	9·8	2	1316	31,000	3	4 4·7-in. 2 3-in. A.A. 24 mines 1 seaplane	6 21-in.	126	—/300
*Evertsen ..	Rotterdam	1926											
*Piet Hein ..	Rotterdam	1927											
*Kortenaer	Rotterdam	1927											
Isaac Sweers	Scheldt	1940	348·8	33·8	11·5	2	1628	45,000	36	5 4·7-in., 4 1·5-in., 4 M., 1 seaplane, 24 mines.	8 21-in.	150	Oil
1st Class Torpedo Boats—													
G 13, 15 and 16 ..	Scheldt Fijenoord	1913–1914	162·5	17·3	9·0	1	150	2,600	25	2 3-in.	3 17·7-in.	27	40/—
Z 3	Amsterdam	1917	201	20·4	6	2	277	5,500	27	2 3-in., 2 M.	4 17·7-in.	48	61/8
Z 5–8 ..	Scheldt Fijenoord	1915	192	19·8	5·5	2	264 Surf./Sub.	5,500	27	2 3-in., 2 M.	4 17·7-in.	48	70/7
Submarines—													
K XIV ..	Rotterdam	1932–3	242	21·5	12·5	2	770/1,030	3,200/1,000	17/9	1 3·5-in., 2 2-pr.	8 21-in.	35	..
K XV ..	Rotterdam												
K XVI ..	Rotterdam												
K XVII ..	Fijenoord												
K XVIII ..	Fijenoord												
O XIX ..	Rotterdam	Bldg.	265	24·6	12·5	2	966/1,020	5,000/—	17/9	1 3·5-in., 2 1·5-in.	8 21-in.	36	..
O XX ..	Rotterdam												
O XXI ..	De Schelde	1939	254½	25½	13	2	888/1,205	5,000/—	20/9	1 3·5-in. 2 1·5-in.	8 21-in.	37	Oil
O XXII ..	De Schelde	1940											
O XXIII	Rotterdam	1939											
O XXIV	Rotterdam	1940											
O XXV	Rotterdam	1940											
O XXVI	Rotterdam	Bldg.											
O XXVII	Wilton Fijenoord	Bldg.											
O 14 ..	De Schelde	1931	199	18·7	11·5	2	560/700	1,900/600	15/8	2 1·5-in. A.A.	5 21-in.	31	..
O 15 ..	De Schelde												
†K XIII ..	Fijenoord	1924	218 8	20·2	12·2	2	660/810	2,400/725	15/8	1 3·5-in. 1 maxim	6 17·7-in.	31	—/45
†K XII ..	Fijenoord												
†K XI ..	Fijenoord												
O 10 ..	Amsterdam	1925	179½	18·7	11½	2	506/627	900/—	12¾/9	1 22-pr. A.A., 1 maxim	5 21-in.	29	—/21
O 9	Flushing												
†K X ..	De Schelde	1923	210	18·3	11·9	2	560/690	1,550/630	15/8	1 3·5-in. 1 maxim	4 17·7-in.	31	—/45
†K IX ..	De Schelde	1922						1,550/630					
†K VIII ..	De Schelde	1922						1,800/630					
†K VII ..	Fijenoord	1921	177·2	16·8	12 5	2	550/630	1,200/600	15/8	1 3-in., 1 maxim	6 17·7-in.	31	—/76

* Dutch East Indian Fleet. † Indian Military Marine.

A Netherlands Submarine operating with the British Navy reported lost.

Norway.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal / Oil
			Length. (Extreme)	Beam.	Draught.								
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
DESTROYERS—													
2 Destroyers	Horten ..	Bldg.	319	32·9	8·9	2	1220	30,000	34	4 4·7-in. 2 1·57-in.	4 21-in.	120	..
Draug, Troll	Horten ..	1908–13	226	22·5	8.8	2	540	7,500	27·0	6 3-in. Draug has 6 4·7-in. in addition	3 18-in.	71	95 / 6
TORPEDO BOATS:													
FIRST CLASS—													
Snogg	Horten ..	1919–1920	173·9	18	5¼	2	250	3,500	25	2 3-in.	4 18-in.	31	30 / —
Brand	Horten ..	1900	130·9	16·0	6·9	1	100	1,100	21	2 M.	2 18-in.	19	17 / —
Laks	Horten ..	1901	126·4	15·0	6·9	1	100	1,150	21·8	2 M.	2 18-in.	19	
Sleipner .. .. .. Gyller	Horten ..	1936	236·3	25·5	6·9	2	625	12,500	30	3 4-in., 1 1·5-in. A.A.	4 21-in.	72	— / 100
Odin, Balder, Tor ..	Fredrikstad	Bldg.											
SECOND CLASS—													
Kjek. Hvas	Fredrikstad	1898	114·5	14·5	6·0	1	73	650–750	19–20	2 M.	2 18-in.	14	11 / —
Hauk, Falk	Horten ..	1903											
Skarv, Teist	Horten ..	1906–7	133	14·5	6·5	1	100	1,600	25	2 3-pr.		18	16 / —
Lom			117	14·5	5·7	1	72	1,100	23	2 M.		16	15 / —
Orn	Horten ..	1903	113	14·5	5·7	1	78	850	23	2 M.		16	
Kjell	Horten ..	1912	135	14·9	6·4	1	100	1,800	25	2 3-pr.		19	15 / —
SUBMARINES—													
B 1.	Horten ..	1922	167·3	17·5	10·5	2	413 / 545	900 / 640	14·5 / 10	1 3-in.	4 18-in.	23	— / 21

Soviet Union.

Some of the details given below are uncertain.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Designed Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal / Oil
			Length. (Extreme.)	Beam.	Draught.								
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Flotilla Leaders—													
Leningrad Kharkov Minsk Perekop Stalingrad Moscow Kiev Volochevka	..	1935 1936 1936 Bldg.	430	..	..	..	1950	..	..	5 5·1-in., 2 3-in. A.A.	21-in.	..	..
Destroyers—													
Gromki Grozni Bodri Gnevni Gordy Gremyashchi Grozovoy Grozyashchi Besposhtchadni	..	1930	..	..	..	..	1600	..	..	4 5·1 in., 2 1·5 A.A.	6 21-in.	..	..
Felix Dzerzhinski Petrovski Nezamojni Shaumyan	Ship & Eng. Co., Nikolaev	1917	303	29·5	10·5	2	1326	29,000	28	4 4-in., 2 7-pr., 4 M., can carry 80 mines	12 18-in. (T.)	120	— / 390
Karl Marx Kalinin	Revel..	1915	344·5	31·3	9·7	2	1350	32,700	35	5 4-in., 1 3-in. A.A., carries mines	9 18-in. (T.)	120	— / 400
Karl Liebknecht Uritsky Volodarski A. Zhdanov Engels Stalin Artem Voikov Lenin	Leningrad..	1914	321	31	9·25	2	1610	32,000	29	4 4-in., 1 3-in. A.A., 2 M., 80 mines	9 18-in. (T.)	110	— / 400
		1914–1915	315	31	10	2	1260	30,000	28			110	— / 350
Frunze	Leningrad..	1914	336	31·1	9·8	2	1100	23,000	34	4 4-in., 1 3-in., 4 M.	6 (D.)	120	— / 350
Sneg Shtorm Shkval	Nikolaev	1932	236	24	10	2	700	13,200	29	2 4-ins., 3 3-in., 2 M. 40 mines.	9 18-in.	72	..
Groza, Metali, Smertsch, Taifun, Uragan, Wiche, Wiuga, Zyklon, Grom, Vikhr, Burya. Purga, Tucha	Leningrad	1933–35	236	24	10	2	700	13,200	29	2 4-in., 3 3-in., 2 M. 40 mines	9 18-in.	72	..
Guard Ships—													
Dserschinski Kirov	Ansaldo	1934	250	27	9	3	800	5,400	20	2 4-in., 4 1·5-in.		120	— / 44
Submarines—													
Chartist Garibaldiets Karbonari	..	1930–1933	..	..	..	..	1039 / 1335	..	..	1 4-in., 1 M.G.	6 21-in.	..	..
Dekabrist Narodovoleets Krasnogvardeets	..	1931	240	23	13¾	2	869 / 1318	2500 / 1200	15 / 8	1 4-in., 1 1·5 in., 1 M.	8 21-in.	44	/ 78
Komsomolka	..												
Jacobinets Revolusioner Spartakovets	..	1931											
12 others	..	1936											
45 in number Type M	..	Bldg.	150	..	..	..	200	..	..	1 1·5-in.	2	..	..
80 in number Type Schtsch	..	1935–1937	200	..	..	..	500	..	..	1 1·5-in.	6 21-in.	..	..

Soviet Union—*continued.*

Name or Number.	Where Built.	Launched.	Dimensions. Length. (Extreme.)	Dimensions. Beam.	Dimensions. Draught.	Number of Screws.	Displacement.	Horse-Power.	Designed Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Coal/Oil
SUBMARINES—*contd.*			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Pravda .. Iskra .. Zvezda ..	..		..	..	..	..	1200/1800	..	..	2 4-in., 2 M.	8	..	..
Bolshevik .. Komissar .. Kommunar .. Tovarisnch .. Krasnoarmeets .. Krasnoflotets .. Bednyak .. Proletarii .. Batrak .. Rabochi ..	St. Petersburg	1916–1917	223	14¾	12·6	2	650/790	2400/900	16/9	2 6-pr., 1 M.G.	4 18-in.	33	—/40
Metallist .. Kommunist .. Marxist.. Politrabotrik ..	..	1918–1922	150	15¾	15¼	2	375/467	480/320	13/11	1 6-pr., 1 M.G.	4 18-in.	28	—/17
L55 (*ex*-British) ..	..	1917	230	24	13	2	870/1139	2400/1600	17/10	1 4-in., 1 M.G.	6 21-in.	40	—/78

There are about thirty-five destroyers and torpedo-boats completed from 1895 to 1912 of very little if any fighting value. Many of the above vessels are known to be practically useless until very extensively repaired and refitted.

Spain.

Name or Number.	Where Built.	Launched.	Dimensions. Length. (Extreme.)	Dimensions. Beam.	Dimensions. Draught.	Number of Screws.	Displacement.	Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Coal/Oil
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
FLOTILLA LEADERS—													
Gravina ..	Cartagena ..	1934	333	31·7	10·5	2	1536	42,000	36	5 4·7-in. 1 3-in. A.A. 4 M.	6 21-in. (T.)	175	—/540
Escano ..													
Ciscar ..													
Jorge Juan ..													
Ulloa ..													
Almirante Valdés..		1930											
,, Antequera		1930											
,, Miranda		1931											
Churruca ..		1929											
Alcala Galiano ..		1930											
Lepanto ..		1928											
José Luis Diez ..		1928											
Sanchez-Barcaiztegui		1926											
Alava ..		Bldg.											
Liniers ..		Bldg.											
DESTROYERS—													
Alsedo ..	Cartagena ..	1922	283	27	9	2	1045	33,000	34	3 4-in., 2 2-pr. A.A.	4 21-in. (D.)	70	—/265
Velasco Ceuta ..		1923											
Juan Lazaga ..		1924											
TORPEDO BOATS—													
14 boats ..	Cartagena ..	1913–1922	164	16·5	6½	3	187	3750	26	3 1·9-in.	3 18-in.	31	33/—
SUBMARINES—													
D1, 2, 3 ..	Cartagena ..	1934–1935	276	21·8	13	2	1050/1375	5000/1350	20·5/9·5	1 4·7-in., 4 M.	6 21-in.	..	..
C 2, 4 .. Isaac Peral (*ex*-C 1)	Cartagena ..	1928–1929	247	20·8	13·5	2	900/1270	2000/750	16/8·5	1 3-in. A.A.	6 21-in.	40	200
B 2 ..	Cartagena ..	1921–24	210	18·9	11·25	2	560/830	1400/850	16/10·5	1 3-in. A.A.	4 18-in.	28	—/66
Mola .. San Jurjo ..	Taranto	1934	231·5	22.5	13	2	880/1230	3000/1300	17/8·5	2 3·9-in. 2 M.G.	8 21-in.	48	150

Sweden.

Name or Number.	Where Built.	Launched.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Trial Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel Coal / Oil
			Length. (Extreme.)	Beam.	Draught								
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons
Destroyers—													
Goteborg .. Stockholm ..	Gothenburg .. Karlskrona ..	1935 1936	304	29·6	12½	2	1,030	32,000	39	3 4·7-in., 4 1-in.	6 21-in.	120	— 150
Klas Horn .. Klas Uggla .. Ehrensköld .. Nordenskjold ..	Malmo Karlskrona Göteborg Malmö	1931 1926	304·2	29·2	10·5	2	1,000	24,000–26,000	35	3 4·7-in., 2 2-prs. A.A., 2 M.	2 trpl. 21-in.	125	— 150
Wale	Malmo ..	1906	216	20·8	9	2	354	8,000	30	2 3-in., 4 6-prs.	4 18-in.	69	80 —
Ragnar† .. Sigurd .. .. Vidar .. .. Hugin .. .. Munin	Malmo .. Gothenburg .. Malmo .. Gothenburg .. Malmo ..	1909 1909 1909 1909 1910	216	20·8	9	2	354	8,000– 9,000	30·0	4 3-in., 2 M.	4 18-in. (D.)	67	80 3
Wrangel † Wachtmeister	Gothenburg ..	1917	232·8	22	9·2	2	458	11,000	34·0	4 3-in., 2 M.	6 18-in.	72	107 6
Malmo .. .. Karlskrona .. Norrkoeping .. Gjaevle	Gothenburg .. Karlskrona .. Gothenburg .. Gothenburg ..	1938 1939 1940 1940	304	29½	12½	2	1,030	32,000	39	3 4·7-in. 4 M.	6 21-in.	130	— 150
*Puice (*ex*-Ricasoli) *Psilander (*ex*-Nicotera)	Naples ..	1926	278·6	28·2	8·7	2	935	36,000	35	4 4·7-in., 2 1·5-in. A.A., 2 M. 40 Mines	4 21-in.	106	— 200
*Romulus (*ex*-Spica) *Remus (*ex*-Astore)	Naples ..	1934	263·6	26·9	7·4	2	638	19,000	34	3 3·9-in., 6 1·5-in. A.A.	4 17·7 in.	..	..
Submarines—													
1st Class—													
Ulven .. Draken .. Gripen ..	Naval Yard, Karlskrona	1930 1926 1928	213	21	10·8	..	700 850	2,800 —	16 9	1 4-in., 1 M.	4 20-in.	32	— 40
Bavern .. Illern .. Uttern ..	Naval, Yard, Karlskrona	1921	185	18·5	9·2	..	500 650	2,800 —	15 9	1 3-in., 1 M.	4 18-in.	..	— 33
Sälen .. Valrossen Hajen ..	Kockum Co., Malmo	1920	171	16·5	11·5	..	450 580	2,800 —	..	1 3-in., 1 M.	4 18-in.	..	— 23
Minelaying Sub.—													
Valen	Kalskrona ..	1925	186	23·2	9·4	..	492 650	..	15 9	1 3-in., 1 M.	4 18-in.	..	— 34
Nordkaparen Delfinen .. Springaren	Kockum	1935	199	20⅜	11	..	500 720	..	15 10	1 4-in.	4 21-in.	28	..
Sjolejonet Sjobjornen .. Sjohunden ..	Kockum ..	1936 1938	204	20½	11	2	620 —	..	15 10	1 4·1-in., 2 M.G.	4 21-in.	32	..

* *Ex*-Italian.

† Fitted for mine-laying.

United States.

Name or Number.	Where bulit.	Completed.	Dimensions. Length. (Extreme.)	Beam.	Draught.	Number of Screws.	Standard Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Oil.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Destroyers—													
Davis	Bath, I.W. Co.	1936–1938	381	36¼	10⅓	2	1,850	52,000	37	8 5-in., 8 M.G.	12 21-in.	195	500
Sampson													
Jouett													
Somers	Federal S.B. & D.D. Co.												
Warrington													
Porter	N.Y.S. Co., Camden		381	36¼	10⅓	2	1,850	50,000	37	8 5-in. guns 8 M.G.	8 21-in.	175	500
Selfridge													
McDougal													
Winslow													
Phelps	Bethlehem S.B. Co., Quincy												
Clark													
Moffett													
Balch													
Grayson	Bath I.W. Co.	Bldg.	341 W.L.	35½	10¼	2	1,630	50,000	37	5 5-in.	10 21-in.	..	..
Eberle													
Plunkett	Federal S.B. & D.D. Co.												
Kearney													
Gwin	Boston, N.Y.												
Meredith													
Livermore	Puget Sound												
Monssen	Bethlehem S.B. Co.												
Woolsey	Bath I.W. Co.												
Ludlow													
Edison	Federal S.B. & D.D. Co.												
Ericsson													
Wilkes	Boston, N.Y.												
Nicholson													
Swanson	Charleston, N.Y.												
Ingraham													
Fletcher	Boston, N.Y.												
Radford	Boston, N.Y.												
Jenkins	Charleston												
La Vallette	Charleston												
Nicholas	Bath, I.W.												
O'Bannon	Bath, I.W.												
Chevalier	Federal S.B.												
Percival	Federal S.B.												
Forrest	Boston, N.Y.	Bldg.	..	..	..	..	..	..	..	..	..	..	..
Fitch													
Guest													
Bennet													
Fullam													
Corry	Charleston, N.Y.												
Hobson													
Pringle													
Halford	Puget Sound												
Leutze													
Bache	Bethlehem Staten Is.												
Beale													
Laffey	Bethlehem San Francisco												
Woodworth													
Emmons	Bath, I.W.												
Macomb													
Strong													
Taylor													
De Haven													
Hudson	Boston, N.Y.												
Bristol	Federal S.B.												
Ellyson													
Hambleton													
Rodman													
Saufley													
Waller													
Watson													
Hutchins	Boston, N.Y.												
Stanly													
Charlston													
115 in Number		Bldg.											
Anderson	Federal S.B. & D.D. Co.	1939	341 W.L.	35½	10⅓	2	1,720	50,000	35	5 5-in.	12 21-in.	160	..

United States—*continued.*

Name or Number.	Where built.	Completed.	Dimensions.			Number of Screws.	Standard Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel.
			Length. (Extreme.)	Beam.	Draught.								Oil.
DESTROYERS—*continued.*			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Charles F. Hughes	Charleston	1939–1940	341 W.L.	35½	10½	2	1,620	50,000	37	5 5-in.	12 21-in.	..	..
Hilary P. Jones	Puget Sound												
Lansdale ..	Boston, N.Y.												
Madison ..													
Niblack ..	Bath, I.W. Maine												
Gleaves ..													
Mayo ..	Bethlehem S. Co. Quincy												
Benson ..													
Buck	Philadelphia, N.Y.	1939	341 W.L.	35½	10½	2	1,570	50,000	37	5 5-in.	12 21-in.	160	..
Wainwright ..	Norfolk, N.Y.												
Roe	Charleston N.Y.												
Morris ..	Norfolk N.Y.												
Walke ..	Boston, N.Y.												
O'Brien ..													
Russell ..	Newport News												
Mustin ..													
Hammann ..	Federal S.B. & D.D. Co.	1939											
Hughes ..	Bath, I.W. Co.	1939											
Sims													
Wilson ..	Puget Sound	1938	334 on W.L.	34¾	9¾	2	1,500	50,000	37	4 5-in.	8 21-in.	155	
Sterrett ..	Charleston N.Y.												
Stack ..	Norfolk, N.Y.												
Rowan ..													
Rhind ..	Philadelphia, N.Y.												
Trippe ..	Boston, N.Y.												
Mayrant ..	Boston, N.Y.												
Maury ..	Bethlehem S.B. Co.	1938–1939											
McCall ..													
Lang	Federal S.B. & D.D. Co.												
Ellet													
Benham ..													
Jarvis ..	Navy Yard, Puget Sound												
Patterson ..													
Henley ..	Navy Yard, Mare Is.												
Ralph Talbot	Navy Yard, Boston												
Mugford ..													
Helm ..	Navy Yard, Norfolk	1936–1938											
Blue													
Bagley ..													
Craven ..	Bethlehem S.B. Co.	1936 1937											
Gridley ..													
Fanning ..	United D.D. Co.	1936–1938	334 on W.L.	34¾	9¾	2	1,500	42,800	36½	5 5-in. guns, 8 M.G.	8 21-in.	190	..
Dunlap ..													
Mahan ..	United D.D. Inc., N.Y.												
Cumming ..													
Drayton ..	Bath, I.W. Co.												
Lamson ..													
Flusser ..	Federal S.B. & D.D. Co.												
Reid													
Case	Navy Yard, Boston												
Conyngham ..													
Cassin ..	Navy Yard, Philadelphia												
Shaw													
Tucker ..	Navy Yard, Norfolk												
Downes ..													
Cushing ..	Navy Yard, Puget Sound												
Perkins ..													
Smith ..	Navy Yard, Mare Is.												
Preston ..													
Dale	Navy Yard, N.Y.	1935	334	34¼	9¼	2	1,395	42,800	36½	5 5-in. A.A., 8 M.G.	8 21-in. (Q)	160	400
Monaghan ..	Navy Yard, Boston						1,395						
Aylwin ..	Navy Yard, Philadelphia						1,375						

United States—*continued.*

Name or Number.	Where built.	Completed.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Oil.
			Length. (Extreme.)	Beam.	Draught.								
DESTROYERS—*continued.*			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Farragut ..	Bethlehem S.B. Co.	1934	334	34¼	9¼	2	1,365	42,800	36½	5 5-in. A.A., 8 M.G.	8 triple (Q)	160	400
Dewey ..	Bath, I.W.Co.						1,345						
Hull	Navy Yard, N.Y.						1,395						
MacDonough	Navy Yard, Boston	1935					1,395						
Worden ..	Navy Yard Puget Sound						1,410						
†Pruitt ..	Bath, I.W.	1920	314·4	31	9·8	2	1,190	25,000	35	4 4-in., 1 3-in. A.A. (Kane, Fox, Brooks, and Hatfield have 4 5-in. guns.)	4 triple 21-in.	122	375
†Sicard ..													
†Preble ..		1920											
*William B. Preston ..	Norfolk, N.W.	1920						26,000					
Noa		1921											
*Hulbert ..		1920											
Decatur ..	Navy Yard, Mare Island.	1922											
Perry ..		1922											
Trever ..		1922											
Wasmuth ..		1921											
Zane		1921											
Litchfield ..		1920											
*Thornton ..	Bethlehem S.B. Co., Squantum	1919						27,000					
*Ballard ..													
*Greene ..													
*Gillis	Bethlehem S.B. Co., Quincy												
*Osmond Ingram ..													
*Belknap ..													
Lawrence ..	New York S.B. Co.	1921											
Hopkins ..		1921											
Barry ..		1920											
Goff		1921											
Bainbridge ..		1921											
Reuben James		1920											
*Williamson ..													
Sands ..													
King ..													
*Childs ..													
Sturtevant ..													
Overton ..													
*McFarland ..													
Humphreys ..													
Kane													
Fox													
Gilmer ..													
Brooks ..													
Hatfield ..													
Paul Jones ..	Cramp, Pa.	1921	314·4	31	9·8	2	1,190		35	4 4-in., 1 3-in. A.A. (Parrot, Whipple, Edws., Borie & Tracy have 4 5-in. guns.)	4 triple 21-in.	122	375
Truxton ..													
John D. Ford													
Pillsbury ..													
Peary		1920											
Pope													
Stewart ..	Cramp, Pa.	1920						26,000					
McCormick ..													
Bulmer ..													
Simpson ..													
MacLeish ..													
Edsall ..													
Parrott ..													
Whipple ..													
J. D. Edwards													
Borie													
Tracy ..													
Barker ..	Newport News S.B. Co.	1919	314·4	31	9·8	2	1,190	27,000	35	4 4-in., 1 3-in. A.A. (Long and Hovey have 8 4-in. twin mtgs. and 1 3-in. A.A.)	4 triple 21-in.	122	375
Broome ..													
Long													
Hovey ..													
Southard ..													
Chandler ..													

* Seaplane tenders. † Minelayers.

United States—*continued.*

Name or Number.	Where built.	Completed.	Dimensions.			Number of Screws.	Displacement.	Horse-Power.	Maximum Speed.	Armament.	Torpedo Tubes.	Complement.	Fuel. Oil.
			Length. (Extreme.)	Beam.	Draught.								
DESTROYERS—*continued.*			Feet.	Feet.	Feet.			Tons.	Knots.				Tons.
Dallas .. *George E. Badger .. *Goldsborough Dahlgren .. *Clemson ..	Newport News S.B. Co.	1920 1921 1920 1919	314·4	31	9·8	2	1,190	25,000	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	375
†Stansbury .. †Howard .. †Hogan .. Crosby ..	Union, I.W. Fore River S.B. Co.	1919 1918	314·4	31	9·8	2	1,060	27,000	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	283
Palmer .. Herbert .. Schenck .. Leary .. .. Dickerson ..	N.Y. S.B. Co.	1919	314·4	31	9·8	2	1,090	26,000	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	286
J. Fred Talbot Cole .. .. Ellis .. .. Bernadou .. Dupont .. Biddle .. Blakeley .. Barney .. Breckenridge Roper .. Elliot .. Greer .. Tarbell ..	Cramp, Phil.	1919 1918	314·4	31	9·8	2	1,090	26,000	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	286
Hamilton .. Ward .. Kennison .. Kilty .. .. ‡Boggs ..	Mare Island, N.Y.	1919 1918 1919 1918 1918	314·4	21	9·5	2	1,090	24,200	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	286
Jacob Jones .. Babbitt .. Badger .. Tattnall ..	New York S.B. Co.	1919	314·4	31	9·8	2	1,090	26,000	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	286
‡Lamberton ..	Newport News S. Co.	1918	314·4	31	9·8	..	1,090	25,000	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	286
Lea .. .. Dorsey .. Dent .. .. Waters .. Talbot .. Rathburne ..	Cramp, Pa.	1918 1918 1918 1918 1918 1919	314·4	31	9·8	..	1,090	26,000	35	4 4-in., 1 3-in. A.A. (Rathburne) has 3 4-in.)	4 triple 21-in.	122	286
Crane .. .. Chew .. .. Schley ..	Union Plant.	1919 1918	314·4	31	9·8	..	1,060	27,000	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	283
§McKean ..	Union, I.W.	1918	314·4	31	9·9	..	1,060	27,000	35	4 4-in., 1 3-in. A.A.	4 triple 21-in.	122	286
§Colhoun .. §Stringham .. §Gregory .. §Little ..	Fore River S.B. Co.	1918	314·4	31	9·8	..	1,060	27,000	35	4 4-in. 1 3-in. A.A.	4 triple 21-in.	122	283
§Manley ..	Bath, I.W.	1917	315·5	30·7	9·5	..	1,020	20,000	32	3 4-in. 1 3-in. A.A.	12 21-in.	122	260
Allen	Bath, I.W.	1917	315·3	29·9	9·8	..	920	17,500	30	4 4-in. 1 3-in. A.A.	4 triple 21-in.	122	290
DESTROYERS NOW FITTED AS MINELAYERS—													
Preble .. Pruitt .. Sicard .. Tracy	Bath Iron-works Cramp	1920 1930	314·4	30·5	9	2	1,160	27,000	35	4 4-in. 1 3-in. A.A. 92 mines	—	107	375
Ramsay .. Gamble .. Breese .. Montgomery	Newport News S. Co.	1918 1919	314·4	30·5	9	2	1,160	25,000	35	4 4-in. 1 3-in. A.A. 92 mines	—	120	286

* Seaplane tenders.
‡ Equipped as targets, wireless controlled.
† Minesweepers.
§ Destroyer transports.

United States—*continued.*

Name or Number.	Where built.	Completed.	Dimensions.			Number of Screws.	Displacement. Surface. / Submerged.	Horse-Power.	Maximum Speed. Surface. / Submerged.	Armament.	Torpedo Tubes.	Complement.	Fuel. Oil.
			Length. (Extreme.)	Beam.	Draught.								
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
SUBMARINES—													
Gar	Electric Boat Co.	Bldg.	298 W.L.	27	13·2	2	1,475/—	..	17/8	..	10 21-in.	..	..
Grampus ..													
Grayback ..													
Grayling ..	Portsmouth Navy Yard.												
Grenadier ..													
Gudgeon ..	Mare Island Navy Yard.												
Gato	Electric Boat Co.												
Greenling ..													
Grouper ..													
Growler ..	Portsmouth Navy Yard.												
Grunion ..													
Guardfish ..													
Drum.. ..	Portsmouth Navy Yard.	Bldg.	..	..	..	..	..	..	..	..	..	..	..
Flying Fish ..													
Finback ..													
Haddock ..													
Halibut ..													
Silverside ..	Mare Island Navy Yard.	Bldg.	..	..	..	..	..	..	..	..	..	..	..
Trigger ..													
Wahoo ..													
Whale ..													
Albacore ..	Electric Boat Co.	Bldg.	..	..	..	..	..	..	..	..	..	..	..
Amberjack ..													
Barb ..													
Blackfish ..													
Bluefish ..													
Bonefish ..													
Cod													
Cero													
Corvina ..													
Darter ..													
Herring ..	Portsmouth Navy Yard.	Bldg.											
Kingfish ..													
Shad													
43 in No. ..		Bldg.											
Mackerel ..	Electric Boat Co.	Bldg.	..	..	..	..	800/—	..	..	..	6 21-in.	..	..
Marlin ..	Portsmouth Navy Yard.												
Perch ..	Electric Boat Co.	1936–1937	300½	25	13·8	2	1,330/1,998	..	17/8	1 3-in.	6 21-in.	54	..
Pickerel ..													
Permit ..													
Plunger ..	Portsmouth Navy Yard.												
Pollack ..													
Pompano ..	Mare Island Navy Yard.												
Tambor ..	Electric Boat Co.	1940	298 W.L.	27	13·3	2	1,475/—	..	..	1 3-in.	10 21-in.	..	..
Tautog ..													
Thresher ..													
Triton ..	Portsmouth Navy Yard.												
Trout ..		Bldg.											
Tuna	Mare Island Navy Yard.	1937											
Salmon ..	Electric Boat Co.		298 W.L.	26	14½	2	1,450/—	..	17/8	1 3-in.	6 21-in.	55	..
Seal		1939											
Skipjack ..													
Snapper ..	Portsmouth Navy Yard.	1938											
Stringray ..													
Sturgeon ..	Mare Island Navy Yard.												
Sargo ..	Electric Boat Co.	1939											
Saury ..													
Spearfish ..													
Sculpin ..	Portsmouth Navy Yard.												
Sailfish (*ex*-Squalus)		1940											
Swordfish ..	Mare Island Navy Yard.	1939											
Sea Dragon ..	Electrical Boat Co.	1939											
Sea Lion ..		1939											
Sea Raven ..	Portsmouth Navy Yard.	1939											
Seawolf ..		1939											
Porpoise ..	Portsmouth Navy Yard.	1936	283	24·9	13	2	1,310/1,934	5,000	21	1 3-in.	6 21-in.	55	..
Pike													
Shark.. ..	Electric Boat Co.	1936	298	25·1	13·9	2	1,315	5,000	21	1 3-in.	6 21-in.	54	..
Tarpon ..													

United States—*continued.*

Name or Number.	Where built.	Completed.	Dimensions. Length. (Extreme.)	Dimensions. Beam.	Dimensions. Draught.	Number of Screws.	Displacement. Surface. / Submerged.	Horse-Power.	Maximum Speed. Surface. / Submerged.	Armament.	Torpedo Tubes.	Complement.	Fuel. Oil.
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
Dolphin	Portsmouth Navy Yard.	1932	319	27·8	13	2	1,540 2,215	4,250 875	17 8	1 4-in., 1 M.	6 21-in.	58	..
Cachalot **Cuttlefish** ..	Portsmouth Navy Yard. Electric Boat Co.	1934	271¾	24·8	13	2	1,110 1,650	3,100 800	17 8	1 3-in. A.A., 1 M.	6 21-in.	45	..
Argonaut ..	Portsmouth Navy Yard.	1928	381	33·8	15·4	2	2,710 4,080	3,175 1,200	14·6 8	2 6-in., 60 mines.	4 21-in.	86	185
Narwhal .. **Nautilus** ..	Portsmouth Navy Yard. Mare Island Navy Yard.	1930	371	33·3	16	2	2,730 3,960	5,450 1,270	17 8·5	2 6-in.	6 21-in.	88	185
Bonita .. **Bass** .. .. **Barracuda** ..	Portsmouth Navy Yard.	1926 1925 1924	341·5	27	14·6	2	2,000 2,506	6,700 1,200	19 8	1 3-in. A.A., 2 M.	6 21-in.	87	160
S48	Lake T.B. Co., Bridgeport.	1922	267	21·8	13·5	2	1,000 1,458	2,000 1,500	14·8 11·0	1 4-in.	5 21-in.	38	237
S47* .. .. **S46*** .. .. **S45*** .. .. **S44*** .. .. **S43*** **S42***	Bethlehem Shipbuilding Corp., Quincy Plant.	1925 1925 1925 1925 1924 1924	225·3	20·5	16	2	850 1,126	1,200 1,500	14 10·4	1 4-in.	4 21-in.	44	154
S41* .. .. **S40*** .. .. **S39*** .. .. **S38*** .. .. **S37*** .. .. **S36*** .. .. **S35*** .. .. **S34*** .. .. **S33*** .. .. **S32*** .. .. **S31*** **S30***	Bethlehem Shipbuilding Corp., Union Plant.	1924 1923 1923 1923 1923 1923 1923 1923 1923 1923 1923 1920	219·3	20·5	16	2	800 1,062	1,200 1,500	14·5 11	1 4-in.	4 21-in.	42	140
S29* .. .. **S28*** .. .. **S27*** .. .. **S26*** .. .. **S25*** .. .. **S24*** .. .. **S23*** .. .. **S22*** .. .. **S21*** .. .. **S20*** **S18***	Bethlehem Shipbuilding Corp., Quincy Plant.	1924 1923 1924 1923 1923 1923 1923 1924 1923 1922 1923	219·3	20·5	16	2	800 1,062	1,200 1,500	14·5 11	1 4-in.	4 21-in.	42	140
S17 .. .. **S16** .. .. **S15** **S14**	Lake T.B. Co., Bridgeport.	1921 1920 1921 1921	231	21·5	13	2	790 1,092	2,000 1,200	15·25 9	1 4-in.	4 21-in.	38	123
S13 .. .. **S12** **S11**	Portsmouth Navy Yard.	1923 1923 1923	231	21·8	13	2	790 1,092	2,000 1,200	14·75 9	1 4-in.	5 21-in.	38	123
S1*	Fore River S.B. Co.	1920	219·3	20·7	16	2	800 1,062	1,200 1,500	14·5 11	1 4-in., 1 aeroplane	4 21-in.	38	140
R20* .. .. **R19*** .. .. **R18*** .. .. **R17*** .. .. **R16*** **R15***	Union, I.W.	1918	186·1	17·5	14·5	2	530 680	880 934	13·5 10·5	1 3-in.	4 21-in.	30	63
R14* .. .. **R13*** .. .. **R12*** .. .. **R11*** .. .. **R10*** **R9***	Fore River S.B. Co.	1919											

* Designed by Electric Boat Co., Groton, Conn.

United States—*continued*.

Name or Number.	Where built.	Completed.	Dimensions.			Number of Screws.	Displacement. Surface. / Submerged.	Horse-Power.	Maximum Speed. Surface. / Submerged.	Armament.	Torpedo Tubes.	Complement.	Fuel. Oil.
			Length. (Extreme).	Beam.	Draught.								
			Feet.	Feet.	Feet.		Tons.		Knots.				Tons.
SUBMARINES—*continued*.													
R7* R6* R5* R4* R3* R2* R1*	Fore River S.B. Co.	1919	186·1	17·5	14·5	2	530 680	880 934	13·5 10·5	1 3-in.	4 21-in.	30	63
O10* O9* O8* O7* O6* O4* O3* O2*	Fore River S.B. Co.	1918	172·3	17·5	14·4	2	480 624	880 740	14 10·5	1 3-in.	4 21-in.	30	73

* Designed by Electric Boat Co., Groton, Conn.

The machinery contractors for the vessels of the E. B. Co. Design built in yards other than the Navy Yards were the New London Ship and Eng. Co., Groton, Conn., and the hulls were built under sub-contract from the E.B. Co.

BRITISH AND FOREIGN AIRCRAFT TYPES

BRITISH NAVAL AIRCRAFT TYPES.

Fleet Air Arm.

Maker, Number, Name.	Type, Number of Seats.	Engine H.P., Make.	Max. speed, m.p.h.	Ceiling, in feet.
Fairey Swordfish.	Torpedo Spotter Reconnaissance. Three-seater.	700 Bristol " Pegasus."	150	19,250
Supermarine Walrus.	Fleet Spotter Reconnaissance. Three-seater.	700 Bristol "Pegasus"	135	18,500
Fairey Seafox.	Light Reconnaissance. Two-seater. Seaplane.	350 Napier Rapier.	124	11,000
Blackburn Skua and Roc.	Dive-Bomber. Fighter.	745 Bristol " Perseus "	— 225	— 20,200
Fairey Albacore.	Torpedo Spotter Reconnaissance. Dive Bomber.	1,065 H.P. Bristol " Taurus."	200 (?)	—
Fairey Fulmar.	Two-seater. Fighter	1,060 H.P. Rolls-Royce " Merlin."	300	—
Blackburn Botha.	Three (Four)-seater. Torpedo Bomber.	2 Bristol Perseus XI 405 H.P.	—	—

R.A.F. SHORE-BASED AIRCRAFT WHICH MAY BE EMPLOYED IN CO-OPERATION WITH NAVAL FORCES.*

Maker, Number, Name.	Type, Number of Seats.	Engine H.P. Make.	Max. speed, m.p.h.	Ceiling, in feet.
Short Singapore III.	Reconnaissance Flying Boat. Five-seater.	Four 525 Rolls-Royce "Kestrel."	136	13,600
Saunders-Roe London.	Reconnaissance Flying Boat. Five-seater.	Two 587 Bristol "Pegasus."	135	14,700
Supermarine Stranraer.	Reconnaissance Flying Boat. Six-seater.	Two 870 Bristol "Pegasus" X.	161	18,500
Short Sunderland.	Reconnaissance Flying Boat. Six-seater.	Four 840 Bristol "Pegasus" XXII.	210	—
Avro Anson.	General Reconnaissance. Four-seater.	Two 310 "Cheetah" IX.	188	19,500
Lockheed Hudson.	General Reconnaissance. Four-seater.	Two 850 Wright Cyclones or Pratt and Whitney "Hornet."	246	—
Saunders-Roe Lerwick	—	Two 1150 "Hercules."	—	—
Bristol Beaufort	Reconnaissance Torpedo-Bomber.	Two 900 Bristol "Taurus."	—	—

* Aircraft from the Bomber and Fighter Commands of the Metropolitan Air Force may also operate at sea.

FOREIGN NAVAL AIRCRAFT TYPES.

United States Naval Air Service.

AIRCRAFT, HEAVIER-THAN-AIR.

Maker, Number, Name.	Type, Number of Seats.	Engine H.P. Make.	Max. speed, m.p.h.	Ceiling (Service), in feet.
Grumman. F3F-2.	Single-seater Fighter.	"Cyclone."	270	32,000
Grumman. F3F-3.	Single-seater Fighter.	750 "Cyclone."	—	—
Vought-Sikorsky. SB2U-1.	Two-seater Scout Bomber.	750 "Twin-Wasp."	205	24,600
Curtiss. SBC-3.	Two-seater Scout Bomber.	—	—	—
Curtiss. SBC-4.	Two-seater Scout Bomber.	"Cyclone."	235	24,700
Douglas. TBD-1.	Two-seater Torpedo Bomber.	850 "Twin-Wasp."	270	—
Curtiss. SOC-1.	Two-seater Scout. Observation.	500 "Twin-Wasp."	Landplane 168 Seaplane 165	16,070 14,900
Consolidated. PBY-1.	Multi-seater. Patrol Flying Boat.	Two 900 "Twin-Wasp."	190	25,000
Grumman. J2F-I.	Utility Aircraft.	775 "Cyclone."	180	21,000
Grumman. G-36.	Single-seater Fighter.	1 "Cyclone."	—	—
Consolidated. PBY-1.	Multi-seater. Patrol Boat.	Two 900 "Twin-Wasp."	190	25,000
Consolidated. PBY-2.	Multi-seater. Patrol Bomber.	Four 1,050 "Twin-Wasp."	226	—
Consolidated. 31.	Patrol Boat.	Two Wright Duplex "Cyclones."	—	—
Martin. PBM-1.	—	Two 1,050 "Twin-Wasp."	225 (?)	—
Vought Sikorsky. XPBS-1.	Patrol Bomber.	Four 1,050 "Twin-Wasps."	210 (?)	17,000

All engines are air-cooled. " Wasp " engines are made by Pratt and Whitney. " Cyclone " engines are made by Curtiss-Wright.

United States—*continued.*

BASES.

The United States have the following naval flying bases on shore:—

Pensacola, Florida (Training);
San Diego, California (Fleet Base and Marines);
Hampton Roads, Virginia (Fleet Base);
Lakehurst, New Jersey (Lighter-than-air craft);
Pearl Harbour, Hawaii (Fleet Base);
Coco-Solo, Canal Zone (Fleet Base);
Anacostia, D.C. (Experimental);
Seattle, Washington (Reserve Training Base);
Squantum, Mass. (Reserve Training Base);
Floyd Bennet Field, Brooklyn (Reserve Training Base);
Philadelphia (Reserve Training Base);
Norfolk, Va. (Reserve Training Base);
Miami, Fla. (Reserve Training Base);
Great Lakes, Ill. (Reserve Training Base);
Grosse Ile, Mich. (Reserve Training Base);
Minneapolis, Minn. (Reserve Training Base);
St. Louis, Mo. (Reserve Training Base);
Kansas City, Kansas (Reserve Training Base);
Long Beach, Calif. (Reserve Training Base);
Oakland, Calif. (Reserve Training Base);
Quantice, Va. (Fleet Marine Base);
St. Thomas, V.I. (Fleet Marine Base);
Sitka, Alaska (Patrol Flying-Boat Base);
Alamada, Calif. (Fleet Base);
San Pedro, Calif. (Fleet Base).

AIRCRAFT, LIGHTER-THAN-AIR.

A fleet of non-rigid airships has been developed and is used for training and experiment. At intervals it is announced that the U.S. Navy intends to resume rigid airship construction, but during 1939 there was no sign of progress in this direction.

Meanwhile, the non-rigid airships include the L–1, of 123,000 cubic feet capacity and the K–2 of 405,000 cubic feet, both completed in 1938. All U.S. airships are inflated with helium.

Japanese Naval Air Service.

Type.	Crew.	Engine and H.P.	Weight, lbs.	Speed, m.p.h.
Fighter.				
Navy 96	1	Kotobuki, 550	—	205
Reconnaissance.				
Navy 94	3	Navy Type 91, 500	5,500	140
Navy 95	2	Kotobuki, 600	—	150
Bomber.				
Navy 89	3	Hispano, 650	6,750	144
Navy 92	3	Hiro, 650	6,700	150
Navy 96	3	2 1,000 H.P. Kinsei	—	245
Flying Boat.				
Short 90–II.	6	3 Rolls-Royce, 800	28,600	137
Navy 91	–	2 Hiro, 650	—	137
Mitsubishi	–	3 Hispano-Suiza, 650	—	—

French Naval Air Service.

Maker, Number, Name.	Type, Number of Seats.	Engine H.P. Make.	Max. Speed, knots.	Ceiling, Endurance.
Briguet "Bizerta" Flying Boat.	Long Reconnaissance	Three 650 Gnome-Rhône.	130	— 12–15 hrs.
C.A.M.S. 37 Flying Boat.	Short Reconnaissance 3	600 Hispano Suiza.	108	14,760 5 hrs.
C.A.M.S. 55 Flying Boat.	Long Reconnaissance 3–5	Two 600 Hispano Suiza.	130	14,700 7 hrs.
Chance-Vought V. 159 Landplane.	Single-seater Fighter (for Aircraft Carrier Bearn.)	—	—	—
Gourdou-Lesseure 810 Float Sea-plane.	Spotter Reconnaissance 2	450 Gnome-Rhône.	120	16,500 5 hrs.
Latécoère 302 "Croix du Sud" Flying Boat.	Long Reconnaissance 4	Four 650 Hispano Suiza.	130	15,000 10 hrs.
Latécoère 298 Float Sea-plane.	Torpedo Bomber 3	800 Hispano Suiza.	186	19,680 5 hrs.
Levasseur P.L.7 Landplane.	Bomber 2–3 seater (marine type, can alight on water).	600 Hispano Suiza.	108	14,000 5 hrs.
Levasseur P.L.101 Avion Marin.	Short Reconnaissance 3	600 Hispano Suiza.	120	16,400 4 hrs.
Loire-Nieuport 70 "Loire" Flying Boat.	Long Reconnaissance 5	Three 500 Hispano Suiza.	130	19,864 10–12 hrs.
Latécoère 521/523 (Astair, Antares, etc.)	Long Reconnaissance	Six	140	40 hrs.
Lioré et Olivier. Lèo H.43	Short Reconnaissance and Bombing.	One	120	3 hrs.
Loire-Nieuport 130 Flying Boat.	Reconnaissance Catapult Plane.	One	130	7½ hrs.

French Naval Air Service—*continued.*

BASES.

The bases and aerodromes of the Naval Air Service at the time of the capitulation of France were as follows:—

1re Région (Cherbourg).
Chantereyne.

2me Région (Brest).
Lanveoc Poulmic;
Rochefort;
Hourtin.

3me Région (Berre).
St. Raphael;
Berre;
St. Mandrier;
Aspretto (Corsica);
Hyères.

4me Région (Bizerta).
Karouba.

In August, 1939, there were two "flying fleets," one of five "flights" attached to the Atlantic Fleet, and one of seven "flights" attached to the Mediterranean Fleet.

There was also one squadron in Indo-China, one in Martinique, and one at Papeate (Tahiti).

AIRCRAFT, LIGHTER-THAN-AIR.

Lighter-than-air craft activities received a severe set-back when the "Dixmude" (ex-German L27) was lost with all hands off the coast of Sicily on December 20, 1923. The French Navy is now developing two classes of airship, the "Vedettes" and the "Escorteurs." The "Vedettes," of which there are nine, are of about 125,000 cubic feet capacity, speed of about 40 m.p.h., a crew of four, and endurances varying from 15 to 25 hours. The "Escorteurs," of which there are four, are of about 350,000 cubic feet, have a speed of about 40 m.p.h., a crew of six, and an endurance of about 40 hours.

Italian Naval Air Service.

Maker, Name, Number.	Type, Number of Seats.	Engine H.P. Make.	Max. Speed, m.p.h.	Ceiling. Endurance.
Alfa Romeo. RO43. Shipplane	Two-seater Reconnaissance.	610 "Piaggio."	200	21,000 6 hrs.
Cant. Z501. Flying Boat.	Four-seater Reconnaissance.	850 Isotta-Fraschini "Asso."	155	— 620 miles.
Cant. Z506B. Floatplane.	Bomber-Reconnaissance.	3–770 "Alfa-Romeo."	242	13,000 — 1,240 miles.
Macchi. C. 99.	Bomber-Reconnaissance.	2–850 Isotta-Fraschini "Asso"	Cruising Speed. 168	16,000 ft. —
Caproni. Ca. 312.	Bomber-Reconnaissance.	2–630 "Piaggio." PXVI.	Max 236	16,400 ft. 930 miles.

BRITISH AND FOREIGN
ORDNANCE TABLES

VICKERS-ARMSTRONGS LIMITED—GUNS AND MOUNTINGS.

Tables Corrected by the Manufacturers, January, 1940.

NAVAL GUNS AND MOUNTINGS.

		40 mm. 2-pdr.	40 mm. 2-pdr.	40 mm. 2·2-pdr.	47 mm. 3-pdr.	57 mm. 6-pdr.	4-in. 101·6 mm.	4-in. 101·6 mm.	4·7-in. 120 mm.	4·7-in. 120 mm.	5·118-in. 130 mm.	5·5-in. 139·7 mm.	5·906-in. 150 mm.
System		Auto.	Auto.	Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.
Diameter of Bore	ins.	1·575	1·575	1·575	1·85	2·244	4	4	4·724	4·724	5·118	5·5	5·906
do. do.	mm.	40	40	40	47	57	101·6	101·6	120	120	130	139·7	150
Length of Bore	cals.	39·37	50	50	50	50	45	50	45	50	52	50	50
Weight of Gun		lb. 590	lb. 655	lb. 1,433	c q. lb. 5 3 14	c. q. 9 1	c. q. 36 0	t. c. q. lb. 2 3 1 14	t. c. 2 19	t. c. q. 3 6 3	t. c. 4 8	t. c. 4 13	t. c. 6 15
do. do.	kg.	268	297	650	298	470	1,830	2,204	3,000	3,391	4,470	4,740	6,858
Weight of Projectile	lb.	2	2	2·2	3·3	6	31	31	48·5	48·5	68	79·37	100
do. do.	kg.	0·91	0·91	1	1·5	2·72	14·06	14·06	22·0	22	30·85	36	45·4
Muzzle Velocity	f.s.	2,000	2,461	2,625	2,800	2,600	2,700	3,000	2,789	3,000	3,000	3,000	2,940
do. do.	m.s.	600	750	800	853	792	823	915	850	915	915	915	896
Muzzle Energy	f.t.	54	84	105	180	280	1,565	1,935	2,616	3,025	4,245	4,953	5,995
do. do.	m.t.	17·0	26	32	55·75	86·7	485	600	810	935	1,315	1,535	1,857
Penetration (W.I. at muzzle).	ins.	..	..	..	6·7	7·5	13·6	16	16·6	18·0	20	22	23
do.	mm.	..	..	..	170	190	345	405	420	460	510	560	585
Rounds per Minute		200	200	130—140	30	28	18	15	12	12	..	..	..
Weight of Mounting and Shield		lb. 1,676	..	lb. 2,128	c. q. lb. 11 1 23	c. q. lb. 17 3 10	t. c. q. 2 18 3	t. c. q. 3 5 1	t. c. q. 4 19 3	t. c. q. 7 15 1	t. c. q. lb. 9 0 1 0	t. c. q. lb. 9 2 0 0	t. c. q. lb. 14 5 3 0
do. do. do.	kg.	760	..	965	582	906	2,985	3,315	5,067	7 887	9,158	9,246	14,517
Weight of Shield		.. ..	.. ..	.. ..	c. q. lb. 1 0 20	c. q. lb. 1 2 10	c. q. lb. 7 2 0	c. q. lb. 14 1 13	c. q. lb. 7 3 0	c. q. lb. 18 3 21	c q. lb. 19 0 0	t. c. q. lb. 1 2 0 0	t. c. q. lb. 3 4 0 0
do. do.	kg.	..	..	..	60	80	380	730	394	962	965	1,118	3,250
Thickness of Shield	ins.	..	..	..	·22	·25	·144	·25	·144	·144	·144	·1875	·625 & ·375
do. do.	mm.	..	..	..	5·6	6·35	3·65	6·35	3·65	3·65	3·65	4·76	16 & 9·5
Angle of Elevation	deg.	85	..	90	20	20	30	30	35	45	45	35	45
Angle of Depression	deg.	5	..	5	20	10	10	10	10	10	10	10	10

The above guns are of all-steel construction.

VICKERS-ARMSTRONGS LIMITED—GUNS AND MOUNTINGS. NAVAL GUNS AND MOUNTINGS—*continued.*

		6-in. 152 mm.	6-in. 152 mm.	8-in. 203 mm.	8-in. 203 mm.	8-in. 203 mm.	9·2-in. 234 mm.	10-in. 254 mm.	12-in. 305 mm.	13·5-in. 343 mm.	14-in. 356 mm.	15-in. 381 mm.	16-in. 406 mm.
Diameter of Bore	ins.	6	6	8	8	8	9·2	10	12	13·5	14	15	16
do. do.	mm.	152·4	152·4	203·2	203·2	203·2	233·7	254	304·8	342·9	355·6	381	406·2
Length of Bore	cals.	45	50	45	50	55	50	50	50	45	50	45	45
Weight of Gun		t. c. 6 10	t. c. q. 6 17 2	t. c. 14 0	t. c. 15 14	t. c. 16 10	t. c. q. 28 16 2	t. c. 26 1	t. c. 43 10	t. c. 66 0	t. c. 80 0	t. c. 87 0	t. c. 105 0
do. do.	kg.	6,605	6,985	14,225	15,940	16,765	29,290	26,470	44,200	67,060	81,284	88,400	106,685
Weight of Projectile	lb.	100	100	250	256	256	380	500	850	1,400	1,560	1,951	2,000
do. do.	kg.	45·36	45·4	113·4	116·0	116·0	172·37	226·8	385·6	635	707·6	885	907·2
Muzzle Velocity	f.s.	2,850	3,000	2,845	3,000	3,150	3,000	2,933	2,933	2,500	2,475	2,500	2,650
do. do.	m.s.	869	915	867	914	960	914	894	894	762	754	760	808
Muzzle Energy	f.t.	5,630	6,240	14,030	15,976	17,615	23,714	29,825	50,705	60,675	66,260	84,550	97,390
do. do.	m.t.	1,745	1,930	4,345	4,950	5,445	7,340	9,235	15,705	18,790	20,520	26,185	30,160
Penetration (W.I. at muzzle)	ins.	22	24	31	34·5	38	38·8	41·7	50·3	51·5	51·65	55	59
do.	mm.	560	610	785	875	965	985	1,060	1,280	1,310	1,310	1,400	1,500
Rounds per Minute		10	..	5	6	6	4	3	2	1·5	1·5	..	1·2
Weight of Mounting and Shield		t. c. q. 12 9 2	t. c. q. lb. 12 1 0 0	t. c. 144 10	t. c. 147 10	t. c. 149 10	t. 257	t. 287	t. 431	t. 558	t. 588	t. 844	t. 1,270
do. do. do.	kg.	12,675	12,245	146,800	150,000	152,000	261,100	291,600	438,000	567,000	597,500	857,500	1,290,000
Weight of Shield		t. c. q. lb. 4 4 3 16	t. c. q. lb 3 4 0 0	t. 24	t. 24	t. 24	t. 102	t. 115	t. 150	t. 192	t. 191	t. 315	t. 670
do. do.	kg.	4,315	3,250	24,400	24,400	24,400	103,600	117,000	153,400	195,100	194,000	320,000	680,700
Thickness of Shield	ins.	1·5 & 1	·625 & ·375	1 & ·75	1 & ·75	1 & ·75	8, 7, 3 & 2	6, 4 & 1·5	13, 11 & 3	11, 4 & 3	10, 9 & 3	15, 12, 11 & 5	15, 11, 8, 4 & 3
do. do.	mm.	38 & 25·4	16 & 9·5	25 & 20	25 & 20	25 & 20	203, 178, 75 & 50	152, 102, & 38	330, 280, & 75	280, 102, & 75	254, 230, & 75	381, 305, 280, 127	381, 280, 203, 102 & 75
Angle of Elevation	deg.	30	35	70	70	70	15	40	15	20	25	30	40
Angle of Depression	deg.	5	10	3	3	3	5	5	5	5	5	5	5

The above guns are of all-steel construction. Guns of steel and wire construction are manufactured for some of the above having approximately the same characteristics.

VICKERS-ARMSTRONGS LIMITED—GUNS AND MOUNTINGS. HOWITZERS AND FIELD GUNS.

		2·953-in. 75 mm. Field.	2·953-in. 75 mm. Field.	4·134-in. 105 mm. Field Howr.	4·134-in. 105 mm. Field.	4·134-in. 105 mm. Field.	4·134-in. 105 mm. Field.	4·134-in. 105 mm. Field.	6-in. 152 mm. Howr. On 105 mm. Carriage.	6-in. 152 mm. Field.	8-in. 203 mm. Railway.	8·268-in. 210 mm. Semi-Mobile.	12-in. 305 mm. Railway.	15-in. 381 mm. Railway.
Diameter of Bore	ins.	2·953	2·953	4·134	4·134	4·134	4·134	4·134	6	6	8	8·268	12	15
do. do.	mm.	75	75	105	105	105	105	105	152	152	203	210	305	381
Length of Bore	cals.	30	40	21	26	35	45	50	20	45	50	40	50	45
		c. q.	c. q.	c. q.	c. q.	t. c. q.	t. c. q.	t. c. q.	t. c. q.	t. c. q.	t. c.	t. c.	t. c.	t. c.
Weight of Gun		7 3	11 3	11 2	12 0	1 5 0	1 13 0	1 14 0	1 6 2	5 12 1	15 5	10 19	43 10	87 0
do. do.	kg.	394	597	584	610	1,270	1,675	1,725	1,346	5,700	15,500	11,125	44,200	88,400
Weight of Projectile . .	lb.	14·33	14·33	26·45	33·07	35·27	35·27	35·27	90·17	100	256	286·6	850	1,951
do. do. . .	kg.	6·5	6·5	12·0	15·0	16	16·0	16	40·9	45·4	116	130	385·6	885
Muzzle Velocity	f.s.	1,952	2,461	1,608	2,000	2,543	2,690	2,953	1,591	2,870	2,900	2,608	2,933	2,500
do. do.	m.s.	595	750	490	610	775	820	800	485	875	884	795	894	760
Muzzle Energy	f.t.	379	602	474	915	1,580	1,770	2,133	1,583	5,730	14,930	13,515	50,705	84,550
do. do.	m.t.	117	186	147	284	490	548	659	490	1,774	4,625	4,185	15,705	26,185
Rounds per Minute		25	..	10	10	10	..	10	..	4	4	3	5 in 2 mins.	2
		t. c. q. lb.	t. c.	c. q. lb.	t. c. q. lb.	t. c. q.	t. c.	t. c. q.	t. c. q.	t. c. q. lb.	t. c.	tons	tons	tons
Weight of Mounting and Shield .		1 1 1 25	1 4	19 1 16	1 9 2 0	2 7 0	2 19	2 16 0	2 11 3	7 13 3 20	62 8	28	175	275
do. do. do.	kg.	1,091	1,219	985	1,498	2,388	2,997	2,842	2,629	7,820	63,400	28,450	177,800	279,400
		c. q. lb.		c. q. lb.	c. q. lb.									
Weight of Shield		1 2 10	..	1 2 24	0 3 0	NoShield	NoShield	NoShield	No Shield	No Shield	No Shield	No Shield	No Shield	No Shield
do. do.	kg.	80·7	..	87	38	..	..	..	..	..	..	..	..	..
Thickness of Shield . . .	ins.	·16	..	·125	·16	..	..	..	..	..	..	..	..	..
do. do. . . .	mm.	4	..	3·2	4·06	..	..	..	..	..	..	..	..	..
Angle of Elevation . . .	deg.	40	45	40	45	45	45	45	45	45	50	50	35½	40
Angle of Depression . .	deg.	5	8	5	5	5	0	5	5	5	0	2	0	0

		TANK GUNS.			FOR VICKERS CARDEN LOYD VEHICLE.	MOUNTAIN HOWITZERS.		LANDING GUN.
		57 mm. 6-pdr. Semi-Auto.	47 mm. 3-pdr. Semi-Auto.	40 mm. 2-pdr. Semi-Auto.	47 mm. 3-pdr.	2·953-in. (75 mm.) Jointed.	4·134-in. (105 mm.) Jointed.	2·953 in (75 mm.) Jointed.
Diameter of Bore	ins.	2·244	1·85	1·575	1·85	2·953	4·134	2·953
do. do.	mm.	57	47	40	47	75	105	75
Length of Bore	cals.	27	35	50	21	18	11	18
		c. q. lb.	c. q. lb.	c. q. lb.	lb.	c. q. lb.	c. q. lb.	c. q. lb.
Weight of Gun		2 2 14	2 2 0	2 0 13	165	3 2 4	5 0 0	3 2 4
do. do.	kg.	133	127	108	74·8	179·8	254	179·8
Weight of Projectile . . .	lb.	6	3·3	2	3·3	14·33	26·45	14·33
do. do. . . .	kg.	2·72	1·5	·91	1·5	6·5	12	6·5
					A.P. Shell. H.E. Shell.			
Muzzle Velocity	f.s.	1,200	1,854	2,600	1,600 984	1,450	1,148	1,450
do. do.	m.s.	366	565	792	488 300	442	350	442
Muzzle Energy	f.t.	60	79	93·7	58·6 22·2	210	242	210
do. do.	m.t.	18·6	24·5	29	18·1 6·9	65·0	74·5	65·0
Rounds per Minute		..	..	..		18	10	..
		c. q. lb.	c. q. lb.	c. q. lb.		c. q. lb.	c. q. lb.	c. q. lb.
Weight of Mounting and Shield .		2 3 21	2 2 0	2 1 14		9 1 14	12 1 0	11 0 0
do. do. do.	kg.	149	127	120·65		476	622	559
				lb.		c. q. lb.	c. q lb.	c. q. lb.
Weight of Shield		..	..	15·25		1 1 0	1 3 6	1 1 5
do. do.	kg.	..	..	6·92		63·5	92	65·75
Thickness of Shield	ins.	..	..	·4		·144	·16	·16
do. do. . . .	mm.	..	..	10		3·6	4·0	4·0
Angle of Elevation . . .	deg.	30	30	20		45	45	45
Angle of Depression . . .	deg.	10	10	10		10	5	5

		44–60 mm.			47 mm.			65 mm.			70 mm. with 25·4 mm. S.C. Tube, on Platform Carriage.	
		44 mm. Barrel.		60 mm. Barrel.	Armour-Piercing Ammunition.		High-Explosive Ammunition.		High Explosive Ammunition.		70 mm. Barrel.	25·4 mm. S.C. Tube.
Diameter of Bore	ins.	1·73		2·36		1·85			2·559		2·756	1·0
do. do.	mm.	44		60		47			65		70	25·4
Length of Bore	cals.	30		20		21			16		15	50
		Barrel.	Breech Ring.	Breech Mechanism.	Barrel.	Breech Ring.	Breech Mechanism.	Barrel.	Breech Ring.	Breech Mechanism.	Gun and Mechanism.	S.C. Tube.
Weight of Gun		75 lb.	50 lb.	26 lb.	75 lb.	68 lb.	28 lb.	88 lb.	62 lb.	38 lb.	172 lb.	56·5 lb.
do. do.	kg.	34	22·7	11·8	34	30·8	12·7	38	28	17	78	25·6
Weight of Projectile .	lb.	2·75		5·5	3·3		3·3		8·8		8·8	0·55
do. do.	kg.	1·25		2·5	1·5		1·5		4		4	0·25
Muzzle Velocity	f.s.	1,706		732	1,600		755		820		700	2461
do. do.	m.s.	520		223	488		230		250		213	750
Muzzle Energy	f.t.	55·5		20·4	58·6		13·0		41·0		30	23·1
do. do.	m.t.	17·2		6·3	18		4		12·7		9·3	7·15
Weight of Mounting and Shield	lb.		343			397			582		558 with Platform	
do. do. do.	kg.		156			180			264		253 ,, ,,	
Weight of Shield	lb.		—			45			106			
do. do.	kg.		..			20·4			48			
Thickness of Shield . . .	ins.		..			0·14			0·16			
do. do.	mm.		..			3·5			4			
		44 mm. Barrel.		60 mm. Barrel.	Low Position.		High Position.	Low Position.		High Position.		
Angle of Elevation . . .	deg.	10		20 to 60	15		45	17		45	45	15 Nominal
Angle of Depression . . .	deg.	5		0	6		0	10		2	10	10

Vickers-Armstrongs Limited—Guns and Mountings. Guns Mounted on Aircraft.

		* ·303-in. (7·7 mm.) for aircraft gun.	*·303-in. (7·7 mm.) Observer's gun.	*·303-in. (7·7 mm.) Pilot's gun.	·5-in. (12·7 mm.) Observer's gun.	·5-in. (12·7 mm.) Pilot's gun.	1·457-in. (37 mm.) Observer's gun.	1·575-in. (40 mm.) Observer's gun.
System		Vickers-Armstrongs Gas operated.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers-Armstrongs Recoil operated.	Vickers Semi-Auto. operated.
Diameter of Bore . .	ins.	·303	·303	·303	·5	·5	1·457	1·575
do. do. . .	mm.	7·7	7·7	7·7	12·7	12·7	37	40
Length of Bore . .	cals.	72	79·2	93·7	50	62·2	39·5	40
Weight of Gun . .	lb.	20·5	25	26·5	45	52·5	200	234
do. do. . .	kg.	9·3	11·3	12	20·4	23·8	90·72	106
Weight of projectile .	lb.	174 grs.	174 grs.	174 grs.	565 grs.	565 grs.	1·47	2
do. do. .	kg.	11·3 grms.	11·3 grms.	11·3 grms.	36·6 grms.	36·6 grms.	0·666	0·91
Muzzle Velocity . .	. f.s.	2,400	2,400	2,440	2,450	2,550	1950	2,300
do. do. . .	m.s.	732	732	744	746	777	594	700
Muzzle Energy . .	. f.t.	0·9	0·9	1	3·36	3·64	38·72	73
do. do. . .	m.t.	0·28	0·28	0·31	1·04	1·125	11·98	22·6
Rounds per Minute . . .	.	900–1000	650–750	900–1000	450–650	450–650	100	..
Weight of Mounting .	. lb.	5	..	..	..	..	102	432
do. do. .	. kg.	2·3	..	..	..	..	46	196
Angle of Elevation .	deg.	90	..	..	..	..	55	60
Angle of Depression .	deg.	90	..	..	..	..	40	30

Machine Guns—Anti-Aircraft.

		*·303-in. (7·7 mm.)	*·303-in. (7·7 mm.)	·5-in. (12·7 mm.)	·5-in. (12·7 mm.)
System		Vickers Recoil operated.	Vickers-Berthier Gas operated.	Vickers Recoil operated.	Vickers Recoil operated.
Diameter of Bore	ins.	·303	·303	·5	·5
do. do.	mm.	7·7	7·7	12·7	12·7
Length of Bore	cals.	93·7	72	62·2	90
Weight of Gun	lb.	32	22	52·5	101
do. do.	kg.	14·5	10	23·8	40·6
Weight of Projectile . .	lb.	174 grs.	174 grs.	565 grs.	690 grs.
do. do.	kg.	11·3 grms.	11·3 grms.	36·6 grms.	44·7 grms.
Muzzle Velocity	f.s.	2,440	2,400	2,550	3,000
do. do.	m.s.	744	732	777	914
Muzzle Energy	. f.t.	1	0·9	3·64	6·15
do. do.	m.t.	·31	0·28	1·125	1·9
Rounds per minute		500–600	450–500	450–650	350–450

* This gun can be adapted to fire any pattern of rifle calibre ammunition.

VICKERS-ARMSTRONGS LIMITED—GUNS AND MOUNTINGS. ANTI-AIRCRAFT GUNS.

	40 mm. 2-pdr.	40 mm. 2-pdr.	40 mm. 2·2-pdr.	47 mm. 3-pdr.	Mobile 75 mm. 40 Calibre	Mobile 75 mm. 46 Calibre	3-inch	4-in.	4-in.	105 mm. 45 Calibre	4·7-in.
System	Auto.	Auto.	Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.
Construction	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Diameter of bore . ins.	1·575	1·575	1·575	1·85	2·953	2·953	3	4	4	4·134	4·724
" " . mm.	40	40	40	47	75	75	76·2	101·6	101·6	105	120
Length of bore . cals.	39·37	50	50	50	40	46	50	45	50	45	40
	lb.	lb.	lb.	c. q. lb.	c. q. lb.	c. q. lb.	t. c. q.	t. c. q.	t. c. q. lb.	t. c. q.	t. c. q.
Weight of gun .	590	655	1,433	5 3 14	11 0 0	13 0 12	1 3 1	1 16 1	2 3 1 14	2 1 2	3 1 0
" " . kg.	268	297	650	298	560	666	1181	1842	2204	2,110	3,100
Weight of projectile lb.	2	2	2·205	3·3	14·33	14·33	14·33	31	31	35·274	48·5
" " . kg.	·91	·91	1	1·5	6·5	6·5	6·5	14·06	14·06	16	22
Muzzle velocity . f.s.	2,000	2,461	2,625	2,800	2,461	2,641	2,560	2,700	3,000	2,625	2,560
" " . m.s.	600	750	800	853	750	805	780	823	915	800	780
Muzzle energy . f.t.	54	84	105	180	602	695	650	1,565	1,935	1,685	2,205
" " . m.t.	17	26	32	55·75	186	215	201	485	599	522	683
Rounds per minute .	200	200	130–140	30	..	..	25	18	18	..	12
	c. q. lb.		c. q. lb.	c. q. lb.	t. c. q. lb.	t. c. q. lb.	t. c. q.	t. c. q. lb.	t. c. q. lb.	t. c. q.	t. c. q. lb.
Weight of mounting (exclusive of Gun) .	14 3 24	..	19 0 0	18 2 3	2 5 2 23	2 5 2 18	2 18 2	6 14 0 18	10 5 1 0	5 18 2	9 0 1 0
" " . kg.	760	..	965	941·1	2,322	2,320	2,971	6815	10,427	6,020	9157·1
Angle of elevation . deg.	85	..	90	80	90	90	90	90	90	90	90
Angle of depression deg.	5	..	5	5	0	0	5	5	5	5	5

VICKERS-ARMSTRONGS LIMITED—GUNS AND MOUNTINGS. MACHINE AND AUTOMATIC GUNS.

	*·303-in. (7·7-mm.) Observer's Gun for Aircraft.	*·303-in. (7·7-mm.) Pilot's Gun for Aircraft.	*·303-in. (7·7-mm.) Land and Naval.	*·303-in. (7·7-mm.) Gun for Aircraft.	*·303-in. (7·7-mm.) for Infantry.	·5-in. (12·7-mm.) Observer's Gun for Aircraft.	·5-in. (12·7-mm.) Pilot's Gun for Aircraft.	·5-in. (12·7-mm.) Land and Naval.	·5-in. (12·7-mm.) Land and Naval.	·5-in. (12·7-mm.) for Anti-Aircraft and Anti-Tank.	1·457-in. (37-mm.) Observer's Gun for Aircraft.	1·575-in. (40-mm.) 2-pr. Anti-Aircraft.	1·575-in. (40-mm.) 2-pr. Auto.	1·575-in. (40-mm.) 2·2-pr. Anti-Aircraft.
System.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers-Arm-strongs Gas operated.	Vickers-Berthier Gas operated.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers-Arm-strongs Gas operated.	Vickers-Arm-strongs Recoil operated.	Vickers Recoil operated.	Vickers Recoil operated.	Vickers Recoil operated.
Diameter of Bore . ins.	·303	·303	·303	·303	·303	·5	·5	·5	·5	·5	1·457	1·575	1·575	1·575
do. do. . mm.	7·7	7·7	7·7	7·7	7·7	12·7	12·7	12·7	12·7	12·7	37	40	40	40
Length of Bore . . cals.	79·2	93·7	93·7	72	72	50	62·2	62·2	90	72	39·5	39·37	50	50
Weight of Gun . . lb.	25	26·5	32	20·5	22	45	52·5	52·5	101	70	200	590	655	1,433
do. do. . . kg.	11·3	12	14·5	9·3	10	20·4	23·8	23·8	40·6	32	90·72	268	297	650
Weight of Projectile . grs.	174	174	174	174	174	565	565	565	690	690	1·47 lb.	2 lb.	2 lb.	2·2 lb.
do. do. . grms.	11·3	11·3	11·3	11·3	11·3	36·6	36·6	36·6	44·7	44·7	0·666 kg.	·91 kg.	·91 kg.	1 kg.
Muzzle Velocity . . f.s.	2,400	2,440	2,440	2,400	2,400	2,450	2,550	2,550	3,000	2,800	1950	2,000	2,461	2625
do. do. . . m.s.	732	744	744	732	732	746	777	777	914	853	594	600	750	800
Muzzle energy . . f.t.	0·9	1	1	0·9	0·9	3·36	3·64	3·64	6·15	5·36	38·72	54	84	105
do. do. . . m.t.	0·28	0·31	0·31	0·28	0·28	1·04	1·125	1·125	1·9	1·66	11·98	17	26	32
Rounds per minute . . .	650–750	900–1000	500–600	900–1000	450–500	450–650	450–650	450–650	350–450	400–450	100	200	200	130–140
Weight of Mounting . . lb.	..	..	..	5	..	..	..	..	..	..	102	1,676	..	2,128
do. do. . . kg.	..	..	..	2·3	..	..	..	..	..	..	46	760	..	965
Angle of Elevation . . .	..	..	..	90°	..	..	..	..	..	..	55°	85°	..	90°
Angle of Depression . . .	..	..	..	90°	..	..	..	..	..	..	40°	5°	..	5°

* This gun can be adapted to fire any pattern of rifle calibre cartridge.

BEARDMORE GUNS AND HOWITZERS.

		Naval.																	
Calibre	ins.	4	4	4·7	4·7	4·7	5·5	5·5	5·5	6·0	6·0	7·5	8	8	9·2	12	13·5	15	16
do.	mm.	101·6	101·6	120	120	120	140	140	140	152	152	190	203·2	203·2	234	305	343	381	406
Length of Bore . .	cals.	50	55	50	45	52·5	55	55	40	50	52·5	45	50	55	50	50	46	45	45
Weight of Gun . .	tons	2·15	2·45	3·65	3·35	3·85	8·0	6·8	5·35	7·95	8·1	13·9	17·5	19·25	29	66	77	96	107
do. do. . .	kg.	2,184	2,489	3,711	3,405	3,911	8,128	6,910	5,435	8,077	8,230	14,122	17,780	18,542	24,402	67,056	78,232	97,536	108,712
Weight of Projectile	lbs.	31	31	50	50	48·5	92·6	82	75	100	100	200	250	250	425	950	1,350	1,850	2,100
do. do. . .	kg.	14·06	14·06	22·68	22·68	22	42	37·2	34	45·36	45·36	90·72	114·2	114·2	192·8	430·9	612·4	839·2	952·5
Muzzle Velocity . .	f.s.	2,920	3,000	2,950	2,650	3,000	2,950	3,000	2,650	2,970	3,000	2,750	2,900	3,000	2,825	2,825	2,650	2,620	2,675
do. do. . .	m.s.	890	914	900	808	914·4	900	914·4	808	905·2	914·4	838	884	914	861	861	808	799	815
Muzzle Energy . .	f.t.	1,833	1,935	3,017	2,434	3,026	5,587	5,117	3,652	6,116	6,240	10,488	14,579	15,602	23,518	52,571	63,738	88,056	104,198
do. do. . .	m.t.	568	599	934	837	937	1,730	1,584	1,131	1,894	1,938	3,248	4,515	4,832	7,283	16,280	20,441	27,270	32,270

		Motor Boats or Sub-marines.	Sub-marine.	Anti-Aircraft.							Tank Guns.	
				For Sub-marines.	Fixed.	Fixed.	Fixed.	Fixed.	Mobile.			
Calibre	ins.	3·0	4·0	3·0	3·0	4·0	4·0	4·724	3·02	3·3	1·85	2·24
do.	mm.	75	101·6	75	75	101·6	101·6	120	77	84	47	57
Length of Bore . . .	cals.	45	40	45	45	45	50	40	47·5	42·5	30·0	23
Weight of Gun . . .	ton	0·67	1·3	0·64	1·65	1·95	2·1	3·1	0·75	1·1	1·8 cwt.	5·6 cwt.
do. do. . . .	kg.	686	1,321	648	1,675	1,981	2,133	3,150	762	1,120	90·7	284
Weight of Projectile . .	lbs.	12·5	31	16	16	31	31	48·5	17·6	21	3·25	6
do. do. . . .	kg.	5·67	14·06	7·26	7·26	14·06	14·06	22	8·0	9·53	1·49	2·72
Muzzle Velocity . . .	f.s.	2,200	2,250	2,100	2,590	2,600	2,850	2,560	2,175	2,300	1,750	1,525
do. do. . . .	m.s.	670	685·8	640	790	792	869	780	663	701	533	465
Muzzle Energy . . .	f.t.	419	1,088	489	744	1,453	1,740	2,205	577	770	69	96·7
do. do. . . .	m.t.	130	337	151	230	450	530	672	179	238	21·6	30

Semi-Auto.

		Anti-Tank.			Field Guns and Howitzers.									
		Infantry Guns.			Gun.	How.	How.	How.	How.	Gun.	How.	How.	Mountain H.	
Calibre I	ins.	1·85	1·575	2·24	3·3	4·134	3·3	4·5	6	6	8	9·2	3·3	
do.	mm.	47	40	57	84	105	84	112	152·4	152·4	203·2	234	84	
Length of Bore	cals.	28·5	37	24	31	20	15	20	13	35	17	17	12·25	
		cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	tons	tons	tons	tons	wts.	
Weight of Gun		1·03	0·92	0·92	7·25	8·0	4·28	9	1·15	3·7	3·0	4·25	4·0	
do. do.	kg.	52·4	46·7	46·7	369	406	194	458	1,168	3,759	3,048	4,318	203	
Weight of Projectile . .	lbs.	3·25	2·0	6·0	18·5	35·2	18·5	35		100	200	290	18·5	21·0
do. do.	kg.	1·49	0·91	2·72	8·39	16	8·39	15·88	45·36	45·36	90·72	131·5	8·39	9·53
Muzzle Velocity	f.s.	1,550	2,000	700	1,820	1,350	1,100	1,100	1,250	2,375	1,500	1,500	1,040	960
do. do.	m.s.	473	609·6	213·4	555	412	335	335·3	381	724	457	457	317	290
Muzzle Energy	f.t.	54	55	20·4	425	444	155	293·6	1,083	3,911	3,120	4,524	138	134
do. do.	m.t.	16·7	17	6·3	131	138	48	90·9	335	1,211	956	1,401	42·7	41·5
		S.A.	S.A.	S.A.										

In same carriage.

In same carriage.

BRAZILIAN NAVAL ORDNANCE.

Calibre in Centimetres. Length in Calibres.	Model and Maker.	Year of Construction.	Weight of gun in kilograms.	Projectile.		
				Weight of Projectile in kilograms.	Velocity in metres per second.	Muzzle energy in Tons.
305 m/m. 45	Model I, Armstrong	1908	61·947	385·500	853	—
152 m/m. 50	Model I ,,	1897	7,722	45·300	793	1454
120 m/m. 49	Model II, ,,	1898	2·794	20·400	793	—
120 m/m. 50	Model III ,,	1908	3·369	20·400	915	—
120 m/m. 41	Model Ansaldo	—	—	20·400	—	—
101,6 m/m. 49	Model I, Armstrong	—	—	12·500	—	—
101,6 m/m. 40	Model II, ,,	1908	1,321	14·000	701	—
101,6 m/m. 40	Model III, Armstrong	1922	1,339	14·000	701	352
101,6 m/m. 45	Model, N. Vickers-Armstrong	1934	—	14·061	853	—
100 m/m 47	Model O.T.O.	—	—	13·750	600	—
87 m/m. 8	Armstrong	1898	108	6·800	254	—
76 m/m. 50	Model I, Bethlem	1918	—	7·700	823	—
76,2 m/m. A.A.	Vickers-Armstrong, Model I	1934	—	6·500	780	—
76,2 m/m. T.R.S.A.	,, ,, ,,	1934	—	5·56	620	—
57 m/m. 40	Model I, Hotchkiss	1898	365	2·720	650	42·4
57 m/m. 42	,, ,,	—	317·5	2·700	701	—
47 m/m. 40	,, ,,	1898	220	1·500	720	28·5
47 m/m. 50 S.A.	Model I, Armstrong	1908	259	1·500	701	—
47 m/m. 50 S.A.	Model II, Armstrong	1908	371	1·500	817	—
47 m/m. 46 S.A.	Model III ,,	1908	371	1·500	817	—
47 m/m. 45	Model I, Nordenfeldt	1898	233·4	1·497	585	—
38 m/m. 41	,, ,,	1898	—	0·810	—	—
40 m/m. 42	Model I, Hotchkiss	1898	120	0·850	600	15·5
37 m/m. 30	,, M. Nordenfeldt	1898	189	0·453	549	—

This Table has been supplied through the courtesy of Captain Natal Arnaud, in London.

FRENCH NAVAL ORDNANCE.

Calibres (mm.) . . .	340	330	305	203	155	152	138			130		100	90	75	37
Model	1912	1931	1906–10	1924	1920	1930	1929	1923	1910	1924	1919	1917	1926	1924	1925
Length (in calibres) . .	45	—	45	50	50	55	50	40	55	40	40	45	50	50	50
Weight of gun (Kgs.) .	66,950	—	54,020	20,716	8,870	7,840	4,300	4,113	5,300	3,875	4,392	1,565	1,600	1,070	158
Weight of projectile . .	576	—	432	123	56·5	54	40	40	36	32	32	14	9·5	6	0·75
Weight of charge (Kgs.)	153	—	126	47	19·6	17	12	9	10·5	8	8	4	3	2	0·25
Pressure (kg/cm²) . .	2,600	—	2,400	2,750	3,050	3,200	2,500	2,500	2,500	2,420	2,420	2,400	2,500	2,560	2,400
Muzzle velocity (m/sec.).	794	—	783	850	850	870	800	700	830	734	734	720	850	850	800

GERMAN NAVAL ORDNANCE.

Calibre.	Usual Naval Designation.	Length in Cals.	Date of Model.	Weight of Gun.	Weight of A.P. Shot.	Initial Velocity.	Maximum penetration direct impact against K.C. at			Danger space against average ships at			Approximate Muzzle Energy.
							9,000 yards.	6,000 yards.	3,000 yards.	10,000	5,000	3,000	
inch	c/m			tons	lbs.	foot-secs.	inches	inches	inches	yards	yards	yards	foot-tons
11	28	..	'28	..	670	..	..	..	..	..	..	..	..
11	28	40	'01	32·2	661·4	2756	6	10	14	150	450	740	31,600
8	20·3	..	..	..	..	..	..	..	..	..	..	..	..
5·9	15	50	..	5·5	101·4	3084	..	..	..	..	..	..	6,690
5·9	15	45	'09	5		2920	..	..	5	..	200	420	5,990
5	12·7	..	..	..	..	..	..	..	..	..	..	..	..
4·1	10·5	45	'16	..	38·2	..	..	..	..	..	..	..	..

Brass cartridge cases to all guns.

15 inch in new 35,000-ton battleships.
Lesser guns: 3·4 inch (88 m/m) firing 22 lb. projectiles in modern and 15 lb. in old models.
A.A. guns: 4·1 inch, 3·5 inch on H.A. mounts ("Flak").
Projectiles: Guns of 11 inch and over fire A.P., Ersatz A.P., H.E., and common shell.
The 1899 and later models have the recoil utilized to return the gun to firing position for pieces over 6 inch. In 6 in., springs are employed.

ITALIAN NAVAL ORDNANCE.

Official Designation :— Calibre mm., length cal.	305/46	254/45	254/45	203/53	203/50	190/45	152/53	152/50	152/45	120/50	120/50	120/45	102/45	100/47	102/35	76/50	76/45	76/40	76/17
Mark A. = Armstrong, V = Vickers, An. = Ansaldo. S. = Schneider.	A., V.	A.	V.	An.	S.-An.	A., V.	An.	A.	S.	An. 1926	A., V.	A. 1918	S. A.		S.	A., V.	S.	A.	S.
Mark O.T.O. = Odero-Terni-Orlando							O.T O.			O.T.O.		O.T.O.		O.T.O.					
Date of introduction.	1909	1907	1906	1929	1924	1906	1927–29	1918	1911	1931	1909	1928–1931	1917	1929	1914–1915	1909	1911	1916	1912
Designation by calibre, cm.	30·479	25·4	25·4	20·3	20·3	19·05	15·24	15·24	15·24	12·0	12·0	12·0	10·2	10·0	10·2	7·62	7·62	7·62	7·62
Calibre in inches	12	10	10	8	8	7·5	6	6	6	4·75	4·75	4·75	4	3·9	4	3	3	3	3
Lengths Total, in feet	47·77	39·07	38·715	36·646	34·593	29·22	27·83	25·94	23·42	19·57	20·38	18·38	15·715	15·721	12·247	13·271	11·722	10·292	4·593
Rifled Bore, in inches .	477·9	358·4	370·5	358·66	—	281·7	—	256·6	219·2	—	204·64	174·64	150·74	12·365	114·29	126	107·2	101·57	44·8
Powder Chamber in inches	97·7	74·91	74·91	64·56	—	51·65	—	44·6	44·6	—	28·64	35·03	27·16	3·112	23·50	22	25·4	—	—
Bore in calibres . . .	37·3	35·84	37·05	—	—	37·5	—	42·77	36·54	—	43·31	36·96	37·53	15·371	28·46	42	35·73	28·42	14·96
No. of Grooves	72	60	70	52	52	44	44	36	56	36	36	36	40	26	32	28	25–8	16	24
Twist of Rifling, in calibres	30	30	00–30	—	30	00–30	30	33	36	30	30	30	—	30	—	30	35·9	33	22
Total Weight in tons . .	62·99	34·49	35·339	19·170	20·800	14·478	7·700	8·100	7·025	3·00	3·662	4·035	2·327	2·020	1·200	1·122	0·698	0·660	0·104
Firing Charge Armour-piercing projectile . . . . lb.	346	185	185	111·994	103·19	70·987	43	—	—	—	—	—	—	—	—	—	—	—	—
Common Shell, H.E., lb.	279·9	185	185	—	—	70·987	—	32·79	30·64	—	14·66	9·589	9·479	10·319	6·50	3·02	3·571	2·281	0·529
Weight Armour-piercing projectile . . . . . . lb.	997·2	494	494	275·573	260	200·39	103·5	—	—	50·5	—	—	—	—	—	—	—	—	—
Shell, H.E., lb.	884·4	489·8	489·8	—	—	498·5	—	110·22	103·61	—	48·74	48·74	30·31	30·318	30·31	14·05	14·05	13·954	11·68
Shrapnel, ... lb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11·68
Bursting Charge. Armour-piercing projectile . . . . lb.	16·63	4·37	4·37	—	—	2·332	—	—	—	—	—	—	—	—	—	—	—	—	—
Shell, H.E. . . . lb.	53·13	29·86	29·86	—	—	11·706	—	5·996	7·528	—	2·711	2·711	2·866	—	2·866	1·102	1·102	—	0·782
Shrapnel, ... lb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0·165
Muzzle Velocity in ft. secs. .	2755·9	2788·77	2788·77	3051·180	2743·20	2788·77	2786	2854	2723	2786	2788	2460	2788	2438·40	2460	2460	2460	2214	1230
Muzzle Energy Total tons per sq. inch	18·63	17·71	17·71	—	—	17·98	—	18·37	16·86	—	18·37	15.75	18·37	—	18·37	18·37	15·75	—	12·47

Calibre 381 for battleships "Littorio," "Vittorio Veneto," "Roma" and "Impero," and calibre 320 for battleships "Cavour," "Cesare," "Duilio" and "Doria"; 254 "S. Giorgio"; 203, 1929, "Zara" class and "Trento" class; 190/45 "S. Giorgio"; 152 "Colleoni" class and the 4 battleships of the "Littorio" class; 149 for cruisers "Bari" and "Taranto"; 135 for Doria, Duilio and 12 cruisers of "Regolo" class; 100 "Trento," "Zara" and "Colleoni" class, and for "Cavour" and "Cesare": 90 for the 4 battleships of "Littorio" class and for "Doria" and "Duilio."

JAPANESE NAVAL ORDNANCE

Date and Pattern of Gun.	KM. (1)	V. (2)	A. (3)	V. (4)	A. (5)	A. (6)	V. (7)	— (8)	A. (9)	Carried by
Desig. by Calibre, in cms.	40·6	35·6	20·3	15·2	15·2	15·2	15·2	14	12	(1) Mutu Class.
Calibre, in inches	16	14	8	6	6	6	6	5·5	4·7	(2) Ise Class. Husô Class. Kongô Class.
Total length, in feet	..	..	..	..	..	..	..	..	..	
Length of Bore, in ins.	..	..	..	..	..	..	..	..	..	(4) Kongô.
Length of Bore, in cals.	45	45	45	50	50	45	45	50	45	(5) Husô Class. Kongô Class (except Kongô). Yahagi.
Total weight, in tons.	..	83	17·3	8	8·7	8·5	7·5	6·25	3·3	
Weight of Firing Charge, Armour-piercing Projectile . lb.	..	..	..	..	..	..	..	..	..	(8) Ise Class. Mutu Class. Kuma Class. Tenryû Class.
Weight { Armour-piercing Projectile . lb.	2190	1400	250	100	100	100	100	82	45	
Weight { Common Shell . ,,	..	..	..	..	..	..	..	..	..	(9) Yodo.
Muzzle Velocity, in f.-s., A.P. Projectile	2780	2526	2740	3000	3000	2130	3000	2725	2988	
Muzzle Energy in foot-tons	118,000	62,500	13,100	6300	6300	3165	6300	4250	2810	
Perforation at Muzzle,† wrought iron, inches	65	48·2	30·5	25·5	25·5	18·8	25·5	20·8	19·2	
Perforation Krupp Steel, 3000 yds.	13·8 at 10,970 metres	..	10⅛	6½	6½	4½	6½	..	2⅛	

† By Tressider's Formula.

NETHERLANDS NAVAL ORDNANCE.

Pattern of Gun :—K. = Krupp ; B. = A. B. Bofors ; V. = Vickers ; H.I.H. = Holl. Industrie Handel Mij.

	K.	K.	K.	B.	H.I.H.	B.	B.	H.I.H.	K.	B.	H.I.H.	B.	H.I.H.	K.	K.	K.	V.	B.
						15 cm. double											2 pdr.	2 pdr. double
Diameter of Bore mm.	280	240	150	150	150	150	120	120	105	88	88	75	75	75	50	50	40	40
Length of Barrel cal.	40	40	50	50	50	50	50	50	50	45	45	55	55	55	40	55	40	60
Weight of Gun kg.	31,000	24,500	7,240	7,250	7,420	7,500	4,060	4,265	2,475	1,475	1,665	1,385	1,665	1,470	245	365	280	320
Weight of Projectile kg.	270	172·85	46	46	46·25	46·25	24	24	18	10	10	5·90	5·90	5·90	1·75	1·76	0·906	0·955
Muzzle Velocity m/sec.	890	814	900	900	900	900	900	900	883	800	800	895	895	895	680	895	600	900
Range max. . . m.	16,100	17,200	22,000	22,000	22,000	22,000	16,000	16,000	12,000	11,400	11,400	10,500	10,500	10,500	6,000	6,000	5,000	8,500
Rounds per Minute .	3	4	10	10	10	20	15	15	15	20	20	28	28	28	25	30	230	240
Weight of Gun, Mounting and Shield kg.	197,424	125,700	19,525	20,500	20,790	72,000	8,610	9,770	8,245	4,603	3,411	4,700	4,700	4,695	1,128	948	910	3,500
Weight of Shield kg.	—	—	5,270	6,100	6,400	24,200	310	310	2,770	—	—	—	—	—	—	—	—	—
Angle of Elevation degr.	15	20	25	29	30	60	30	35	20	70	35	95	90	80	20	15	85	90
Angle of Depression degr.	4	4	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

NORWEGIAN NAVAL ORDNANCE.

The Coast Artillery.

Official designation:— Calibre mm., length cal.		305	280	280	240	210	210	150	150	150	120	40
		H*/30	K†/40	H*/14	H*/13, 16	K†/45	K†/45	K†/50	K†/50	K†/47, 5	K†/43, 9	Aut. gun/60
Mark A. = Armstrong, B. = Bofors, Kr. = Krupp, Wh. = Whitworth, St. Ch. = St. Chamond		B.	Kr.	Wh.	St. Ch.	A.	St. Ch.	A.	B.	A.	A.	B.
Design. by calibre in cm. . .		30·5	28	28	24	20·93	20·93	14·91	14·92	14·91	12	4
Calibre in inches		12	11·02	11·02	9·45	8·24	8·24	5·87	5·87	5·87	4·72	1·57
Length	Total in mm. . .	9,150	11,200	4,090	3,158	9,520	9,520	7,720	7,703	7,082	5,400	2400
	,, inches . .	360·23	440·95	161·02	124·33	374·80	374·80	303·93	303·26	278·81	212·6	94·5
	Rifled bore in mm. .	7358·2	8,235	3,192	2719·7	7866·4	7863·1	6547·7	6359·1	5971·5	4552	1936
	,, ,, inches	289·69	324·21	125·66	107·08	309·7	309·57	257·78	250·36	235·26	179·21	76·2
	Bore in calibre . .	30	37	13	12·7	43·8	43·8	50	50	46	43·9	60
Capacity of Powder Chamber in dm.³		85	164·6	26·2	17·8	56·20	56·20	25·4	28·5	18·12	8·47	0·49
Capacity of Powder Chamber cubic inches		5,187	10044·7	1598·9	1086·3	3429·6	3429·6	1,550	1739·2	1105·8	517	29·9
No. of grooves		80	84	72	72	32	64	36	44	28	26	16
Twist of rifling in calibres .		40–25	45–25	40–15	14–78	0–30	29–89	0–30	45–30	0–30	0–30	45–30
Total weight in tons . . .		132	80·8	39·5	20	64	43·9	—	38·4	19·6	5·6	1·7
Weight of firing charge, kg. .		59	62	7·86–7·95	4·75	24·85	24·85	—	15	9·71	4·5	0·29
,, ,, ,, lb. .		129·8	136·4	17·3–17·5	10·45	54·67	54·67	—	33	21·36	9·9	0·63
Weight of projectile, kg. . .		385·6	345–255	345–215	215	140	140	45	45	45	20·4	1·0
,, ,, ,, lb. . .		848·3	759–561	759–473	473	308	308	99	99	99	44·9	2·2
Muzzle velocity, m./sec. . .		615	630–706	290–350	285	700	700	900	900	778	783	850
,, ,, feet/sec. . .		2017·8	2067–2316·4	952·4–1148·4	935·1	2296·7	2296·7	2961·9	2961·9	2552·6	2569	2788
Muzzle energy	in m. tons . . .	7433·5	6979·2–6477·2	1478·8–1342·4	890·1	3500	3500	1857·8	1857·8	1388	638	36·8
	,, foot tons . . .	24389·3	22898·8–21251·7	4851·9–4403	2920·4	11483·5	11483·5	6095·4	6095·4	4554	2093·3	120

* Howitzer.

† K means gun.

NORWEGIAN NAVAL ORDNANCE.

THE NAVY.

Official designation :— Calibre mm., length cal. Mark A. = Armstrong, B. = Bofors, N. = Nordenfelt, H = Hotchkiss O = Oerlikon		210/44	150/46	120/44	120/44	100/40	100/40	76/50	76/40	76/28	76/28 A.A.	76/21 A.A.	65/43	40/60	20/70
		A.	A.	A. N.	B.	B. I.	B. II.	B.	A.	B.	B.	B.	H. N.	B. Aut. gun.	O Aut. gun.
Design. by calibre in cm.		20·93	14·91	12	12	10·16	10·16	7·6	7·6	7·6	7·6	7·6	6·5	4	2
Calibre in inches		8·24	5·87	4·7	4·7	4	4	3	3	3	3	3	2·6	1·57	0·79
Length	Total in mm.	9,520	7,093	5,400	5,610	4,334	4,334	4,066	3139·4	2,316	2,316	1,782	3,025	2,400	2,069
	,, in inches	374·8	279·25	212·6	220·9	170·6	170·6	160	123·6	91·2	91·2	70·2	119·1	94·5	81·5
	Rifled bore in mm.	7,866	5,949	4,552	4,524	3,397	3,397	3243·6	2,600	1834·1	1834·1	1300·1	2333·5	1936	
	,, ,, in inches	309·7	234·2	179·2	178·1	133·7	133·7	127·7	102·4	72·2	72·2	51·2	91·9	76·2	
	Powder chamber in mm.	1,234	828	661·6	769	587·2	587·2	518·45	410·7	251·7	251·7	251·7	421	314	
	Powder chambers in inches	48·6	32·6	26	30·3	23·1	23·1	20·4	16·2	9·91	9·91	9·91	16·57	12·3	
	Bore in calibres	43·8	45·8	44	44·1	40	40	50	40	28	28	21	43·4	60	70
No. of grooves		32	28	26	36	32	32	28	16	28	28	28	26	16	9
Twist of rifling in calibres		0–30	0–30	0–30	25·6	30	30	30	0–30	27	27	30	0–28	45–30	36
Total weight in tons		96·5	17·9–12·9	8·56	8	5	5·6	2	3·15–1·43	0·974	1·3	0·888	1·63	1·6	0·061
Weight of firing charge, kg.		26	10·7	4·5	4·88	3·25	3·25	1·75	1·05	0·46	0·46	0·46	0·9	0·29	0·17
,, ,, ,, lb.		57·3	22·2	9·92	10·76	7·16	7·16	3·85	2·31	1·01	1·01	1·01	1·98	0·63	0·375
Weight of projectile, kg.		142	45	20·41	21	14·06	14·06	5·67	5·67	5·67	5·67	5·67	4·0	1·0	0·124
,, ,, ,, lb.		313	99·3	44·9	46·3	31	31	12·5	12·5	12·5	12·5	12·5	8·8	2·2	0·273
Muzzle velocity, m. sec.		700	800–808	783	800	775	775	860	674	500	500	460	725	850	830
,, ,, feet sec.		2,297	2,625–2,651	2,569	2,625	2,543	2,543	2,887	2,211	1,640	1,640	1,510	2,379	2,788	2,723
Muzzle energy	in m. tons	3,500	1,468–1,500	638	685	429	429	214	131	72·2	72·2	61·2	107	36·8	4·35
	in foot tons	11,484	4,817–4,992	2,093	2,248	1,408	1408	702	430	237	237	200	351	120	14·05

SPANISH NAVAL ORDNANCE.

Calibre.	Length.	Weight of Gun.	Total Weight.	Weight of Charge.	Weight of Shell.	Initial Velocity.	Muzzle Energy.
	m.	kgs.	kgs.	kgs.	kgs.	m.p.s.	Tn. m.
305 mm.	15·659	65,646	91,131	130	385·55	894	15,984
203·2 „	10·476	15,900	40,250	35·8	116·1	885	4,698
152·4 „	7·867	8,738	21,337	15	45·36	900	1,920
120 „	5·582	3,226	9,639	6·4	22	850	813
120 „ (G.A.) . .	5·691	2,985	10,655	6·1	22	853	818·5
101·6 „ 50 C. . . .	·292	2,120	5,893	5·275	14·06	914	598
101·6 „ 45 C. . . .	4·770	1,840	8,657	3·9	14·06	823	485
101·6 „ 40 C. . . .	4·231	1,264	4,750	2·5	14·06	701	352
76·2 „ 50 C. . . .	3·987	973	2,154	1·6	5·67	823	200
76·2 „ 45 C. . . .	3·601	823	2,953	1·5	5·67	792	185

A. B. BOFORS—GUNS AND MOUNTINGS

Tables corrected by the Manufacturers, January, 1940.

NAVAL GUNS AND MOUNTINGS.

		25 mm.	25 mm. double.	40 mm.	40 mm.	40 mm. double	75 mm.	75 mm.	75 mm. double	88 mm.	102 mm.	105 mm.	105 mm. double
System		Auto.	Auto.	Auto.	Auto.	Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.
Diameter of Bore	mm.	25	25	40	40	40	75	75	75	88	102	105	105
Length of Barrel	cal.	64	64	43	60	60	40	49	60	45	50	40	50
Weight of Gun	kg.	75	75	165	220	220	430	615	1,195	1,665	2,430	1,180	2,550
,, Projectile	kg.	0·250	0·250	1·0	1·0	1·0	6·5	6·5	6·5	10	14	16	16
Muzzle Velocity	m.s.	850	850	700	850	850	600	750	850	800	850	700	800
Range, max.	m.	5,500	5,500	9,980	11,200	11,200	11,200	14,300	16,000	16,000	18,300	14,600	18,200
Rounds per Minute		180	360	120	120	240	30	28	50	20	15	14	25
Weight of Gun, Mounting, and Shield	kg.	570	900	900	1,600	3,100	1,410	1,775	8,300	3,550	7,590	2,950	22,100
Weight of Shield	kg.	—	—	—	—	—	240	—	—	—	—	—	4,500
Angle of Elevation	deg.	90	90	90	90	90	40	80	90	40	80	32	85
,, Depression	deg.	10	10	10	10	10	10	5	10	10	10	10	10

NAVAL GUNS AND MOUNTINGS—*continued.*

		12 cm.	12 cm.	12 cm. double	15 cm.	15 cm.	15 cm. double	20·3 cm. double	25·4 cm. double	28 cm. double
Diameter of Bore	mm.	120	120	120	149·1	149·1	149·1	203	254	283
Length of Barrel	cal.	45	50	50	45	50	50	50	45	50
Weight of Gun	kg.	2,600	4,100	4,100	6,100	7,865	7,500	22,500	37,900	50,000
,, Projectile	kg.	21	24	24	46	46	46	115	225	305
Muzzle Velocity	m.s.	800	900	900	835	900	900	900	850	900
Range, max.	m.	19,300	19,500	19,500	19,600	24,500	24,500	28,000	30,300	30,000
Rounds per Minute		12	10	18	8	7	15	12	8	6
Weight of Gun, Mounting, and Shield	kg.	8,700	11,000	20,000	17,860	28,300	72,000	170,000	320,000	703,600
Weight of Shield	kg.	800	1,500	1,600	4,550	12,000	24,200	29,000	114,000	107,000
Angle of Elevation	deg.	45	30	30	30	60	60	45	45	35
,, Depression	deg.	10	10	10	10	10	10	5	10	8

A.B. Bofors—Guns and Mountings. *Howitzers and Field Guns.*

		75 mm. light Field Gun.	75 mm. Field.	75 mm. Field.	10.5 cm. Field Howr.	10·5 cm. Field.	10·5 cm. Field.	15 cm. Field Howr.	15 cm. Field Howr.	15 cm. Field.	21 cm. Field Howr.
Diameter of Bore	mm.	75	75	75	105	105	105	152·4	149·1	149·1	210
Length of Barrel	cal.	24	40	46	24	42	46	22	24	43	22
Weight of Gun	kg.	265	365	400	500	1,200	1,380	1,470	1,825	5,250	6,050
,, Projectile	kg.	6·5	6·5	6·5	14	15·3	16·5	41	41	46	100
Muzzle Velocity	m.s.	500	625	710	525	785	800	475	580	825	575
Range, max.	m.	10,200	12,000	14,000	11,000	17,000	18,200	12,000	15,000	22,500	16,000
Rounds per Minute		25	25	25	12	10	10	8	6	—	3
Weight of Gun, Mounting and Shield	kg.	920	1,375	1,550	1,825	3,750	4,200	4,300	5,600	13,700	17,000
Angle of Elevation	deg.	50	45	45	45	45	45	45	45	45	60
,, Depression	deg.	10	5	5	5	3	3	3	5	0	0

		Tank Guns.		Infantry Guns.						Mountain Howitzers.	
		37 mm.	47 mm.	37–81 mm.		47–75 mm.		37 mm.	47 mm.	75 mm.	105 mm.
				37 mm. Barrel.	81 mm. Barrel.	47 mm. Barrel.	75 mm. Barrel.				
Diameter of Bore	mm.	37	47	37	81	47	75	37	77	75	105
Length of Barrel	cal.	45	33	45	20	33	20	45	70	22	12
Weight of Gun	kg.	105	105	144		130		103	196	256	290
,, Projectile	kg.	0·7	1·5	0·7	4·4	1·5	4·5	0·7	1·65	6·5	12
Muzzle Velocity	m.s.	800	560	800	320	560	300	800	750	470	300
Range, max.	m.	6,400	5,400	7,100	6,000	6,500	5,400	6,400	6,300	10,000	6,600
Rounds per Minute		30	30	25	20	25	20	30	25	25	12
Weight of Gun, Mounting and Shield	kg.	300	300	450		425		335	515	790	840
Angle of Elevation	deg.	25	25	80		60		25	18	50	40
,, Depression	deg.	10	10	8		5		10	10	10	10

A.B. BOFORS—GUNS AND MOUNTINGS. *Anti-Aircraft Guns.*

		25 mm. Fixed.	25 mm. Mobile.	40 mm. Fixed.	40 mm. Mobile.	75 mm. Mobile.	75 mm. Fixed.	80 mm. Mobile.	102 mm. Fixed.	105 mm. Mobile.
System		Auto.	Auto.	Auto.	Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.	Semi-Auto.
Diameter of Bore	mm.	25	25	40	40	75	75	80	102	105
Length of Barrel	cal.	64	64	60	60	60	60	50	50	50
Weight of Projectile	kg.	0·250	0·280	1·0	1·0	6·5	6·5	8	14	16
Muzzle Velocity	m.s.	850	900	850	850	840	840	750	850	800
Rounds per Minute		200	200	120	120	25	25	25	15	12
Weight of Gun and Mounting	kg.	500	1100	900	2,000	5,000	3,400	5,000	7,000	10,000
Angle of Elevation	deg.	90	90	90	90	85	85	85	85	85
,, Depression	deg.	10	5	10	5	5	5	3	5	0

UNITED STATES NAVAL ORDNANCE.

GUN.	MARK.	Length in Calibres.	Total Length.	Capacity of Chamber in Cubic Inches.	Travel of Projectile in Inches.	Weight of Gun.	Weight of Projectile.	Weight of Charge.	Muzzle Velocity.	Muzzle Energy.	Penetration at Muzzle, Krupp Armour, using Capped-Projectile.
			inch.			tons.	lb.	lb.	ft.-seconds.	ft.-tons.	inch.
1-in. A.A.	..	75	..	..	..	..	..	..	..	..	..
3-in. S.A.	V., VI.	50	159	219	128·3	1·0	13	3·85	2700	658	3·3
4-in. A.A.	..	50	..	..	..	..	..	..	..	..	..
4-in. R.F.G.	VII.	50	205	652	168·3	2·6	33	9·0	2500	1,430	4·6
4-in. R.F.G.	VIII.	50	205	652	168·3	2·9	33	12·3	2800	1,794	5·3
5-in. A.A.	..	25	..	..	..	..	..	..	..	..	..
5-in. A.A.	..	38	..	..	..	..	..	..	..	..	..
5-in. B.L.R.	V., VI.	50	256	1,200	215·6	4·6	60	19·2	2700	3,032	6·2
5-in. B.L.R.	VI.	50	256	1,200	215·6	4·6	50	20·5	3000	3,122	6·4
5-in. R.F.G.	VII.	51	261	1,135	215·6	5·0	50	23·8	3150	3,439	6·8
6-in. B.L.R.	..	47	...	..	..	..	..	..	..	..	..
6-in. B.L.R.	VI.	50	300	2,101	247·5	8·3	105	30·0	2600	4,920	8·0
6-in. B.L.R.	VIII.	50	300	2,101	247·5	8·6	105	37·0	2800	5,707	8·3
7-in. B.L.R.	II.	45	323	3,643	259·8	12·7	165	58·0	2700	8,338	9·6
8-in. B.L.R.	III., IV.	35	305	3,170	245·8	13·1	260	43·8	2100	7,948	8·6
8-in. B.L.R.	V.	40	343	5,243	273·1	18·1	260	78·0	2500	11,264	10·6
8-in. B.L.R.	VI.	45	369	5,243	299·1	18·7	260	98·5	2750	13,360	12·0
10-in. B.L.R.	I., II.	30	329	6,779	251·1	25·1	510	90·0	2000	14,141	10·7
10-in. B.L.R.	III.	40	413	10,222	327·0	34·6	510	207·5	2700	25,772	15·6
12-in. B.L.R.	I., II.	35	441	11,991	345·2	45·3	870	160·0	2100	26,596	14·2
12-in. B.L.R.	III., IV.	40	493	17,096	392·2	52·1	870	237·5	2400	34,738	16·8
12-in. B.L.R.	III., IV.	40	493	17,096	392·2	52·1	870	305·0	2600	40,768	18·5
12-in. B.L.R.	V.	45	553	16,974	452·0	52·9	870	305·0	2700	43,964	19·4
12-in. B.L.R.	VI.	45	553	14,970	452·0	53·6	870	340·0	2850	48,984	20·8
12-in. B.L.R.	VII.	50	607	14,296	506·3	56·1	870	340·0	2950	52,483	21·7
13-in. B.L.R.	I., II.	35	479	15,068	374·9	61·4	1130	180·0	2000	31,333	15·0
14-in. B.L.R.	I.	45	642	..	..	63·6	1400	365·0	2600	65,606	39·7
14-in. B.L.R.	II.	50	700	..	..	82·2	1400	..	2800	76,180	44·1
16-in. B.L.R.	..	45	..	..	..	105·0	2100		2006	98,500	45·95
16-in. B.L.R.	..	50	..	..	..	130·0	2100		2800	114,270	51·08

MISCELLANEOUS

DIARY OF NAVAL EVENTS IN 1940.

January.

6.—H.M. trawler Kingston Cornelian sunk.

9.—Air attack on merchant ships in North Sea, including Trinity House tender.

11.—Coastal Command attack on three destroyers off Horns Reef. Air attack on trawlers.

12.—Air attack on shipping in North Sea—trawler sunk, lightship bombed.

16.—Loss of H.M. submarines Seahorse, Starfish, and Undine announced.

21.—H.M.S. Grenville, destroyer, sunk.

22.—Loss of H.M. trawler Valdora announced.

24.—H.M.S. Exmouth, destroyer, sunk.

29.—Air attack on ships and lightships from Shetlands to Kentish coast.

30.—Air attack on shipping off East Coast. Convoy escort damaged U-boat, which was later sunk by flying-boat.

February.

4.—Air attacks on shipping off East Coast. H.M.S. Sphinx, minesweeper, bombed; sank next day while in tow in heavy seas. (First warship loss due to bombing.)

9.—Air attack on shipping off East Coast. H.M. trawlers Fort Royal and Robert Bowen sunk. H.M.S. Antelope sank two U-boats.

16.—H.M.S. Cossack rescued British seamen from s.s. Altmark in Josing Fjord.

19.—H.M.S. Daring, destroyer, sunk. Air attack on trawlers.

20.—Air attack on trawlers.

21.—R.A.F. attack on warships in Heligoland Bight.

22.—H.M. trawler Fifeshire sunk and Solon damaged by air attack. Air attack on trawlers.

24.—H.M. trawler Benvolio sunk.

27.—Air attack on trawlers. French destroyer Simoun rammed and sank U-boat.

MARCH.

1.—Air attack on shipping and convoy in North Sea.

2.—Air attack on shipping in North Sea and English Channel; s.s. Domala set on fire.

3.—Air attack on shipping in North Sea.

4.—R.A.F. sank U-boat in Schillig Roads.

6.—Air attack on lightship. French battleship Jean Bart launched.

7.—R.A.F. attack on three enemy patrol vessels near Borkum and an auxiliary near Sylt. Air attack on shipping in North Sea.

11.—R.A.F. successfully attacked U-boat in Schillig Roads.

15.—H.M. trawler Peridot sunk.

16.—Air attack on Fleet anchorages at Scapa Flow—damage to one warship. H.M. trawler Maida sunk.

17.—Air attack on collier and trawlers.

20.—Air attack on convoy.

21.—H.M. submarine Ursula sank German s.s. Hedderheim off coast of Denmark.

22.—Air attack on Cromer Knoll lightship.

23.—H.M. submarine Truant sank German s.s. Edmund Hugo Stinnes IV off coast of Denmark.

24.—H.M. trawler Loch Assater sunk.

27.—Coastal Command sank German patrol vessel in North Sea. French destroyer La Railleuse sunk by explosion in Casablanca. German submarine U.21 ran ashore in Skagerrak—interned by Norwegians.

APRIL.

2.—Air attack on Scapa Flow.

3.—Air attack on two convoys in North Sea.

8.—Allied Navies laid three minefields off coast of Norway. H.M.S. Glowworm, destroyer, sunk by German warships. British submarines sank tankers Poseidon and Kreta in Oslo Fjord and transport near Kristiansand. Polish submarine Orzel sank troopship Rio de Janeiro in Skagerrak. Air attack on Scapa Flow.

9.—Germany invaded Denmark and Norway. Air attack on British Fleet off Bergen: H.M.S. Rodney and two cruisers slightly damaged, H.M.S. Gurkha, destroyer, hit—sank later. H.M.S. Renown engaged Scharnhorst and Hipper off Narvik. German cruiser Blücher sunk by mine in Oslo Fjord. Norwegian minelayer Olaf Tryggvason torpedoed and sank German warship off Horten. H.M. submarine Truant sank cruiser Karlsruhe off Kristiansand. H.M.S. Zulu sank U-boat off Orkneys. R.A.F. attack on German warship in Bergen Fjord—cruiser "Köln" class hit.

10.—Fleet Air Arm attack on Bergen Fjord—cruiser " Köln " class sunk. Destroyer (5) action at Narvik. Two German destroyers sunk; others damaged. H.M.S. Hunter sunk; Hardy beached; Hotspur and Hostile damaged. H.M. submarine Sealion sank transport August Leonhardt. Air attack (60) on Scapa Flow.

13.—H.M. submarine Spearfish torpedoed Admiral Scheer. Fleet Air Arm torpedoed German destroyer in Trondheim Harbour.

13.—H.M. submarine Snapper sank tanker Moonsund. Fleet Air Arm attack on ships at Bergen. R.A.F. attack warships at Kristiansand. Fleet Air Arm attack on Narvik—two destroyers hit.

13.—Second action at Narvik: H.M.S. Warspite and destroyers—nine German destroyers sunk.

14.—Fleet Air Arm sank store-ship at Bergen. British force landed at Namsos.

15.—British destroyers sank U-boat near Narvik. British force landed at Harstadt, near Narvik. British submarines sank two transports and obtained four torpedo hits on convoy in Skagerrak. Fleet Air Arm attack on transports and aircraft in Bergen—one store-ship sunk; transport and flying-boat set on fire.

16.—Fleet Air Arm attack on shipping off Bergen—transport sunk; submarine on surface hit.

17.—British cruiser bombarded Stavanger aerodrome—subsequently hit by bomb. British force landed at Aandalsnes. Loss of H.M. submarine Thistle announced.

18.—H.M.S. Eclipse damaged by aircraft attack.

19.—H.M. submarines Snapper and Sunfish each sank four German ships.

20.—British submarines attack on convoy—two transports torpedoed. H.M. trawler Rutlandshire sunk by bomb at Namsos.

23.—R.A.F. attack on Sylt—two German patrol vessels sunk.

24.—Air attack on Scapa Flow. French destroyers sank two patrol ships at entrance of Skagerrak.

25.—German supply ships bombed in Oslo Fjord.

29.—H.M. trawlers Hammond and Larwood sunk. Three German supply ships torpedoed and sunk.

30.—Loss of H.M. submarines Tarpon and Sterlet announced. H.M. trawlers Bradman and Cape Siretoko sunk.

MAY.

1.—British force withdrew from Aandalsnes. H.M.S. Dunoon, minesweeper, sunk by mine off East Coast. H.M.S. Bittern, sloop, bombed and set on fire; later sunk by our forces at Namsos.

2.—British and French forces withdrew from Namsos. French submarine Orphe sank U-boat. French destroyer damaged and patrol vessel sunk by mine.

4.—French destroyer Bison and H.M.S. Afridi, destroyer, bombed and sunk while escorting transports.

6.—Polish destroyer Grom sunk by bomb off Narvik.

8.—Loss of H.M. trawlers Warwickshire, Cape Chelyuskin, Jardine, St. Goran, Gaul, and Aston Villa announced.

10.—Germans invaded Holland and Belgium. British troops landed in Iceland.

11.—Fleet Air Arm twice attacked German warships at Bergen—three hits.

12.—Loss of H.M. submarine Seal announced.

15.—H.M.S. Valentine, destroyer, lost.

19.—German minefield reported in South African waters. H.M.S. Whitley, destroyer, lost.

21.—H.M.S. Effingham, cruiser, wrecked. H.M.S. Princess Victoria, minelayer, sunk by mine.

22.—Five German transports and supply ships sunk. H.M. trawler Rifsness sunk.

23.—Loss of French destroyer l'Adroit, submarine Doris, and supply ship Niger announced.

24.—Air attack on East Dudgeon lightship.

26.—H.M.S. Curlew, anti-aircraft ship, sunk. Zeebrugge lockgates blocked. H.M.S. Wessex, destroyer, lost. H.M. trawler Charles Boyes sunk.

28.—Allied forces captured Narvik. H.M. trawlers Melbourne and Cape Passaro sunk.

29.—Withdrawal from Dunkirk began.

30.—H.M.S. Grafton, Grenade, and Wakeful, destroyers; Abukir, transport, and certain small auxiliary craft lost.

JUNE.

2.—Air attack on hospital ships Paris and Worthing.

3.—Withdrawal from Dunkirk concluded. H.M.S. Basilisk, Keith, and Havant, destroyers, and twenty-four " minor war vessels " lost. Air attack on fourteen Grimsby trawlers.

9.—Narvik evacuated—Norwegian campaign ended. H.M.S. Glorious, aircraft-carrier, Ardent and Acasta, destroyers, Orama, transport, and Oil Pioneer, tanker, sunk by German warships. H.M.S. Carinthia, armed merchant cruiser, sunk by U-boat.

10.—German motor torpedo boats attacked British convoy off East Coast.

10.—H.M.S. Vandyck, armed merchant cruiser, sunk by aircraft off coast of Norway. Italy declared war on Great Britain and France.

11.—R.A.F. damaged Italian coast defence ship San Giorgio and two submarines at Tobruk. Italian air attacks on Malta—sixty-seven casualties.

12.—Loss of Polish submarine Orzel announced.

13.—Fleet Air Arm bombed Scharnhorst at Trondheim. H.M.S. Scotstoun, armed merchant cruiser, sunk by U-boat.

14.—Two damaged Italian submarines took refuge in Ceuta and Algeciras.

15.—H.M.S. Calypso, cruiser, sunk. H.M. trawlers Myrtle and Ocean Sunlight sunk.

16–17.—French asked for armistice.

17.—Transport Lancastria sunk by aircraft off St. Nazaire.

19.—Liner Niagara sunk by mine in Tasman Sea.

20.—H.M. submarine Clyde attacked Scharnhorst off Trondheim. R.A.F. obtained three hits on Scharnhorst and Fleet Air Arm also attacked her—hit escort destroyer. H.M.S. Andania, armed merchant cruiser, sunk. Loss of H.M. trawler Juniper announced.

22.—H.M. trawler Moonstone captured Italian submarine.

23.—Italian submarine sunk.

24.—Italian submarine sunk. H.M.I.S. Pathan, patrol vessel, sunk. H.M.S. Campeador V, yacht, sunk by mine.

25.—Naval and military forces raided French Channel coast.

27.—Italian destroyer Espero sunk.

28.—H.M. submarine Tetrarch sank German transport. H.M.C.S. Fraser, destroyer, sunk in collision. Two Italian submarines sunk.

30.—Loss of H.M. submarine Grampus announced.

JULY.

1–2.—R.A.F. attack on Kiel—Scharnhorst hit.

3.—French warships in British ports seized. Ships at Oran bombarded.

4.—Air attack on Portland.

5.—French light cruiser Rigault de Genouilly torpedoed. Air attack on Gibraltar. R.A.F. and Fleet Air Arm attack on Tobruk.

6.—Fleet Air Arm bombed battleship Dunkerque at Oran.

7.—H.M. submarine Snapper torpedoed five German ships.

8.—French battleship Richelieu disabled at Dakar. H.M.S. Whirlwind, destroyer, sunk. Italian air attack on British Mediterranean Fleet—cruiser slightly damaged.

9.—British squadron engaged Italian squadron. Fleet Air Arm torpedoed cruiser. Italian destroyer Zeffiro sunk. H.M. submarine Parthian sank Italian submarine.

10.—Fleet Air Arm sank Italian destroyer and hulk in harbour north of Augusta (Sicily).

11.—H.M.S. Warrior II, patrol yacht, sunk by aircraft in English Channel.

13.—Air attack on convoy in English Channel.

14.—H.M.S. Escort, destroyer, torpedoed and foundered while in tow in Western Mediterranean. Air attack on shipping in Straits of Dover.

15.—Loss of H.M. submarine Shark announced.

17.—R.A.A.F. flying-boat sank U-boat in Atlantic.

18.—H.M. trawler Rinovia shot down aircraft. H.M.S. Imogen, destroyer, sunk in collision.

19.—German raider in West Indies—s.s. King John and Davisian sunk. H.M.A.S. Sydney and destroyers sank Italian cruiser Bartolomeo Colleoni. Seventy aircraft attacked convoy off South coast.

20.—Fleet Air Arm attack on Tobruk. Air attack on shipping in English Channel.

21.—Loss of H.M. submarine Salmon announced. H.M. trawler Crestflower sunk.

22.—Fleet Air Arm attack at Bergen. H.M.S. Brazen, destroyer, attacked by aircraft and sank later.

23.—Flying-boat attacked Italian convoy in Mediterranean. H.M. trawler Capina sunk.

24.—Fleet Air Arm torpedoed German auxiliary. British M.T.B. engaged six German boats and damaged one in English Channel.

24.—French liner Meknes torpedoed by E-boat.

25.—Heavy air attack on convoy in Channel—five sunk and five damaged. Also attack by nine E-boats. H.M. trawler Fleming sunk. H.M. trawler Berberis shot down one aircraft. H.M. trawlers Kingston, Galena and Rodino sunk by aircraft.

29.— H.M.S. Gulzar, patrol yacht, sunk by aircraft. H.M. trawler Staunton sunk by mine. Air attack on destroyers. H.M.S. Wren sunk and Montrose shot down two aircraft.

31.—H.M.S. Delight, destroyer, attacked by aircraft—sank later. H.M.S. Alcantara, armed merchant cruiser, engaged German raider in South Atlantic.

AUGUST.

1.—Fleet Air Arm bombed Norwegian wireless station. Air attack on convoy in North Sea. H.M. submarine Oswald rammed and sunk by Italian destroyer Vivaldi in Mediterranean. Fleet Air Arm attack on Cagliari (Sardinia) aerodrome.

3.—H.M. trawler Cape Finisterre sunk by aircraft. Air attack on Trinity House lightship tender.

4.—Italy invaded British Somaliland.

5.—H.M. trawler Marsona sunk by mine.

6.—H.M. trawlers Drummer and Oswaldian sunk by mines.

7.—H.M. trawler River Clyde sunk by mine.

8.—E-boat attack on convoy (20)—one E-boat sunk and another damaged. Air attack on convoy—sixty aircraft destroyed. Fleet Air Arm attack petrol depôts at Dolvik (south of Bergen).

11.—Air attack on Portland. Air attack on convoy. H.M.S. Windsor and H.M. trawlers Edwardian and Peter Carey brought down five aircraft. Transport Mohamed Ali El Kebir sunk by U-boat in Atlantic. Loss of H.M. submarine Odin announced.

12.—Air attack on Portsmouth.

13.—British motor torpedo boats engaged light enemy forces. H.M. trawlers Tamarisk and Pyrope sunk.

14.—H.M.S. Malcolm and Verity engaged six trawlers and three E-boats in English Channel. H.M.S. Transylvania, armed merchant cruiser, torpedoed by U-boat. South-east coast lightship sunk by aircraft. H.M. trawler Elizabeth Angela sunk by aircraft.

15.—Greek cruiser Helle sunk by Italian submarine at Tinos.

16.—Italian air attack on two Greek destroyers. Coastal Command air attack on Flak ship in Stavanger Fjord—damaged.

17.—British warships and Fleet Air Arm attack Bardia and Fort Capuzzo. Loss of H.M. submarine Orpheus announced.

18.—British Somaliland evacuated.

19.—Fleet Air Arm attack on transports in Haugesund.

20.—R.A.F. attack on two destroyers in North Sea—one damaged. S.S. Turakina attacked by raider in Tasman Sea.

22.—Convoy in Straits of Dover attacked by gunfire from French coast and by aircraft. Fleet Air Arm attack on Bomba—two Italian submarines, one destroyer, and submarine depôt ship sunk.

23.—British warships bombarded Bardia and seaplane base at Bomba.

24.—H.M. trawler Arctic Trapper shot down two aircraft in North Sea. H.M.S. Penzance, sloop, sunk by U-boat 700 miles off coast of Ireland. H.M. trawler Resparko sunk.

25.—H.M. submarine Sealion sank store-ship in North Sea.

26.—H.M.S. Hostile, destroyer, sunk by mine.

27.—Loss of H.M. submarine Spearfish announced.

28.—Fleet Air Arm attack on patrol vessel and supply ship off coast of Norway.

30.—Dutch liner Volendam, carrying British children, torpedoed by U-boat in Atlantic—eventually towed into port.

30–31.—Fleet Air Arm attack on Boulogne.

31.—H.M. submarine Parthian torpedoed Italian cruisers and destroyers. Italian Fleet sighted by Fleet Air Arm aircraft but retreated to Taranto. H.M.S. Dunvegan Castle, armed merchant cruiser, sunk by U-boat in North Atlantic. Fleet Air Arm attacked Elma aerodrome, Sardinia.

SEPTEMBER.

2.—H.M. submarine Sturgeon sank large transport in the Kattegat. R.A.F. attack on supply ships off coast of Holland and another off coast of Norway. Fleet Air Arm attack on Cagliari aerodrome, Sardinia.

4.—Fleet Air Arm attack on Maritza and Calato aerodromes, Rhodes. H.M.A.S. Sydney, H.M.S. Orion, and Ilex bombarded Dodecanese Islands. Ilex sank two Italian motor torpedo boats and damaged another near Pegadia. British submarine sank transport Marion in Kattegat. H.M. trawler Royalo sunk by mine.

5.—H.M.S. Ivanhoe and Esk, destroyers, sunk by mine or torpedo. Express damaged but safe in port.

6.—Fleet Air Arm attack on Boulogne. H.M. submarine Truant rescued British crew of s.s. Haxby from Norwegian s.s. Tropic Sea in German hands off Cape Finisterre. R.A.F. and Fleet Air Arm attack on Boulogne Harbour.

8.—Fleet Air Arm attack on supply ships off coast of Norway.

9.—Fleet Air Arm attack on supply ship in Haugesund and tanker south of Bergen. H.M. submarine Rorqual sank two and H.M. submarine Osiris one Italian supply ship in Mediterranean. Loss of H.M. submarine Phoenix announced. First U.S. destroyers transferred.

10.—Air attack on collier Macville in Irish territorial waters.

11.—R.A.F. and Fleet Air Arm attack on German supply ships in convoy—one sunk off Dunkirk and two damaged off Cap Gris Nez.

12.—R.A.F. attack on shipping off Le Havre. Air attack on convoy off east coast of Scotland.

13.—R.A.F. attack on convoy of tankers off Zeebrugge.

14.—French cruisers Montcalm, Georges Leygues, and Gloire, with three destroyers, arrived at Dakar from Toulon.

15–16.—R.A.F. attack on cruiser off Terschelling and tanker and supply ship in Elbe Estuary. Convoys off coast of Holland attacked—two supply ships sunk and others damaged.

16.—Fleet Air Arm attack on Benghazi—destroyer sunk.

17.—Sidi Barani and coast road from Sollum bombarded. City of Benares, carrying children, sunk by U-boat in mid-Atlantic.

18.—Loss of H.M. submarine Narwhal announced. R.A.F. continued attacks on invasion ports and attacked convoy off Borkum—direct hit on destroyer.

20.—R.A.F. attack on French and Belgian ports.

21.—R.A.F. attack on convoy of twelve merchant vessels near Boulogne. R.A.F. attack on Benghazi.

22.—H.M. submarine Osiris sank Italian destroyer in Adriatic. Sidi Barani bombarded. H.M.S. Dundee, sloop, sunk by U-boat.

23.—General de Gaulle's force and six British warships off Dakar—abortive action.

24.—R.A.F. attack on minesweepers in English Channel and convoy off Terschelling. Loss of H.M. submarine Thames announced.

25.—Sidi Barani bombarded.

26.—H.M. submarine H.49 attacked convoy of eight Italian supply ships and sank two. H.M. submarine Tuna sank supply ship.

27.—Loss of H.M. trawler Loch Inver announced. Aircraft machine-gunned Irish trawler Kosmos.

28.—First U.S. destroyers arrived at British port.

29.—R.A.F. attack on Tobruk.

OCTOBER.

2.—British Mediterranean Fleet landed reinforcements at Malta. Italian force sighted by aircraft—retreated. Stampalia, Dodecanese Islands, bombarded. Loss of H.M. trawler Recoil announced.

3.—H.M.S. Sappho, yacht, sunk.

4.—R.A.F. attack Benghazi, Tobruk, and Bardia. Fleet Air Arm attack at Haugesund. German guns on French coast shelled convoy in Straits of Dover.

6.—Sunderland flying-boat sank U-boat in Atlantic.

7.—H.M. trawler Comet sunk by mine. Two Italian submarines sunk.

8.—H.M. Tug Saucy sunk by mine.

9.—R.A.F. and Fleet Air Arm attack on Brest. R.A.F. attack on shipping at Tobruk.

10.—H.M. trawler Kingston Sapphire sunk by U-boat.

10–11.—Cherbourg bombarded.

12–13.—R.A.F. attack convoy off coast of Norway. H.M.S. Ajax sank two Italian destroyers and damaged a third south-east of Sicily. Air attack on Mediterranean Fleet—H.M.S. Liverpool damaged. R.A.F. attack on Bardia, Derna, and Tobruk. Sidi Barani bombarded.

13–14.—Fleet Air Arm attack on Lago in Dodecanese.

15.—British submarine bombarded Savona.

15–16.—Dunkirk bombarded.

16.—Convoy of three German supply ships and two escort vessels destroyed.

16–17.—R.A.F. attack on Benghazi.

17.—British cruiser engaged four destroyers south-west of Land's End. H.M. trawlers Resolvo, Listrac, and Warwick Deeping and H.M. drifter Summer Rose sunk.

18.—British warships chased three German trawlers and sank one off coast of France.

19.—Fleet Air Arm attack on German seaplane base at Tromsö.

19.—H.M.S. Girl Mary, patrol vessel, lost. R.A.F. attack on Hamburg and Wilhelmshaven.

21.—Convoy in Red Sea attacked by Italian destroyers. H.M.S. Kimberley engaged and sank Francesco Nullo. R.A.F. attack on enemy convoy off coast of France.

22.—H.M.C.S. Margaree, destroyer, sunk in collision. Free French patrol vessels 06 and 07 sunk by German light craft.

23.—R.A.F. torpedoed two supply ships. H.M.S. Dundalk, minesweeper, sunk by mine.

24.—H.M. trawlers Velia and Lord Stamp sunk by mines.

25.—British batteries shelled German convoy and German guns fired on British convoy in Straits of Dover. H.M. submarine Swordfish sank torpedo boat off coast of France. H.M. submarine Regent sank Italian supply ship. H.M.S. Venetia, destroyer, sunk by mine. Sidi Barani bombarded.

26.—R.A.F. torpedo attack on German shipping. Liner Empress of Britain bombed, set on fire, and abandoned. Later torpedoed and sunk by U-boat, while in tow off coast of Ireland.

28.—Italy invaded Greece.

29.—Fleet Air Arm attack on Maltezana, Dodecanese Islands. Air attack on Portsmouth.

30.—R.A.F. attack on Cherbourg. Italian naval officers attempted to torpedo British ships at Gibraltar " by a special device." H.M. trawlers Wave Flower and Joseph Buxton sunk by mines. H.M.C.S. Bras d'Or, minesweeper, presumed lost in gale.

November.

1.—British shipping in English Channel shelled from French coast and attacked by aircraft.

2.—H.M. trawlers Hickory and Lord Inchcape sunk by mines. H.M. submarine Taku sank tanker off coast of France.

3.—Italian submarine took refuge in Tangier.

4.—H.M.S. Laurentic and Patroclus, armed merchant cruisers, sunk by U-boat. Two Italian U-boats destroyed.

5.—Two U-boats sunk—one of which torpedoed the Empress of Britain. Crete established as British naval and air base. German warship attacked Atlantic convoy. H.M.S. Jervis Bay, armed merchant cruiser, and four merchant ships sunk. Second Italian submarine took refuge in Tangier.

8.—Air attack on shipping in Thames Estuary.

9.—H.M. submarine Sturgeon sank two enemy supply ships. U.S. City of Rayville and British freighter sunk by mines in Bass Strait, Australia. Loss of H.M. submarine H.49 announced.

11.—Fleet Air Arm attack Cagliari, Sicily. H.M.S. Ark Royal attacked by aircraft. Air attack on convoy in North Sea.

11–12.—Fleet Air Arm attack on Taranto. Three Italian battleships, two cruisers and two auxiliaries damaged. British attack on convoy of four supply ships and two destroyers off Valona.

15.—H.M. trawlers Rinovia, Sevra, William Wesny, Stella Orion, and H.M. drifter Girl Helen sunk while minesweeping.

17.—Mogadishu, Italian Somaliland, bombarded.

18.—Dante, Italian Somaliland, bombarded.

19.—Loss of H.M. submarine Rainbow announced. Air attack on convoy in North Sea. E-boat sunk in North Sea.

20.—Australian minesweeper sunk in collision in Port Philip Bay, Bass Strait.

21.—Greek destroyer Aetos sank Italian submarine. German raider sank s.s. Port Brisbane in Indian Ocean.

24.—Fleet Air Arm and Coastal Command attack Boulogne. H.M. trawler Kingston Alalite and H.M. drifter Reed sunk by mines.

27.—Squadron from Gibraltar, including H.M.S. Renown, Ark Royal, and Berwick, in action with Italian force south of Sardinia. V. Veneto, battleship, damaged by aircraft torpedo, two cruisers hit, one by gunfire and one by torpedo. H.M.S. Berwick damaged.

28.—H.M. trawlers Dungeness and Fontenoy sunk by aircraft.

29.—British and German destroyers in action in English Channel. H.M.S. Javelin hit by torpedo, but towed in. Ras Alula, Italian Somaliland, bombarded.

DECEMBER.

1.—Loss of H.M. submarine Triad announced. British M.T.B.'s attacked supply ship s.s. Santos off coast of Holland.

2.—H.M.S. Sturdy, destroyer, wrecked. Coastal Command attack on shipping off coast of Norway.

3.—Coastal Command attack on supply ship off coast of Norway.

5.—H.M. trawlers Ethel Taylor, Amethyst, Elk, and Calverton, and H.M. drifter Christmas Rose sunk while minesweeping.

6.—H.M.S. Carnarvon Castle, armed merchant cruiser, attacked German raider in South Atlantic. R.A.F. disabled Italian destroyer at Santi Quaranta.

7.—Greeks captured Italian destroyer at Santi Quaranta.

10.—H.M.C.S. Saguenay, destroyer, torpedoed by U-boat.

12.—Coastal Command air attack on convoy off coast of Holland.

13.—H.M. submarine Sunfish sank supply ship and torpedoed tanker off coast of Norway. H.M.S. Forfar, armed merchant cruiser, sunk by U-boat. Two Italian submarines left Tangier after forty days' refuge.

13–14.—H.M. submarine Truant attacked convoy off Cape Spartivento, Italy. Bardia bombarded. Fleet Air Arm attack on shipping in Tripoli—two ships hit.

14.—Italian submarine Naiade sunk off coast of Libya.

14–15.—R.A.F. attack on warships at Naples—five hits on concentration of cruisers and destroyers.

15.—British warships bombarded and Fleet Air Arm bombed Bardia.

15–16.—H.M. submarine Truant sank Italian tanker off coast of Calabria.

17.—H.M.S. Ladybird attacked Bardia, penetrated harbour.

18.—M.T.B.'s sank supply ship off coast of Belgium. Bardia area bombarded, December 13–18.

18–19. British battleships bombarded Valona and a cruiser and destroyer force swept Adriatic.

19.—French submarine Sfax and tanker Rhone sunk by Italian submarine between Casablanca and Dakar.

20–21.—Fleet Air Arm attack on Tripoli.

21.—Fleet Air Arm attack convoy of three Italian ships—one blown up and another sunk. U.S. tanker Charles Pratt sunk by unknown submarine off west coast of Africa.

22.—Loss of H.M. submarine Swordfish announced.

25.—German warship attacked convoy in North Atlantic—H.M.S. Berwick slightly damaged.

26.—H.M.S. Acheron, destroyer, sunk.

27.—Fleet Air Arm attack on shipping in Haugesund area.

28.—Greek submarine Papanicolas attacked convoy in Adriatic and sank three supply ships.

31.—Greek submarine Katsonis sank tanker by gunfire in Adriatic. H.M. submarine Thunderbolt sank Italian submarine approaching French Atlantic port.

BRITISH AND FOREIGN NAVIES.

PRINCIPAL OFFICIALS.

Great Britain.

Board of Admiralty.

First Lord.—The Right Honourable A. V. Alexander, M.P.

First Sea Lord and Chief of Naval Staff.—Admiral of the Fleet Sir Dudley Pound, G.C.B., G.C.V.O.

Second Sea Lord and Chief of Naval Personnel.—Admiral Sir Charles Little, K.C.B.

Third Sea Lord and Controller.—Vice-Admiral B. A. Fraser, C.B., O.B.E.

Fourth Sea Lord and Chief of Supplies and Transport.—Vice-Admiral Geoffrey S. Arbuthnot, C.B., D.S.O.

Fifth Sea Lord and Chief of Naval Air Services.—Vice-Admiral Guy C. C. Royle, C.B., C.M.G.

Vice Chief of Naval Staff.—Vice-Admiral Tom S. V. Phillips, C.B.

Assistant Chiefs of Naval Staff—Rear-Admiral H. R. Moore, C.V.O., D.S.O.
Rear-Admiral A. J. Power, C.V.O.
Rear-Admiral Sir Henry Harwood, C.B., O.B.E.

Parliamentary and Financial Secretary.—Sir Victor Warrender, Bart., M.C., M.P.

Civil Lord.—Captain Austin Hudson, M.P.

Controller of Merchant Shipbuilding.—Sir James Lithgow, Bart., M.C.

Permanent Secretary.—H. V. Markham, Esq.

Foreign Powers.

Country.	Minister of Marine.	Chief of Staff.
Argentina . . .	Rear-Admiral Mario Fincati	—
Brazil	Vice-Admiral Henrique Aristides Guilhem	Vice-Admiral J. M. Castro e Silva
Chile	Don Emilio Bello Codecido (Minister of National Defence), Vice-Admiral Julio Allard (Director General of the Navy)	—
China	Admiral Chen Shao-Kwan (Minister of Naval Affairs)	Vice-Admiral Chen Hsiesn-Yung (Vice Minister)
Colombia . . .	—	—
Cuba	—	—
Denmark . . .	Vice-Admiral H. Rechnitzer (Chief of Naval Defence and Director of the Naval Ministry)	Commodore C. Hammerich
Ecuador . . .	Colonel Benigno Andràde Flores (Minister of Defence)	General Enrique Bariga (Commanding Naval Forces)
Finland . . .	J. Niukkanen (Minister of Defence)	Rear-Admiral Lundmann
France . . .	Amiral de la Flotte J. L. X. F. Darlan.	
Germany . . .	Adolf Hitler (Supreme Commander of the Armed Forces)	General-Admiral Dr. Raeder (Commander-in-Chief of the Navy)
Greece . . .	J. Paparassiliou	Rear-Admiral A. Sakellariou
Hungary . . .	Rear-Admiral O. R. Wulff (Inspector General)	—
Italy	Signor Benito Mussolini	Ammiraglio Arturo Riccardi
Japan . . .	Admiral Oikawa	H.I.H. Prince Hiroyasu Fushimi, G.C.V.O.
Mexico . . .	General Quiroga (Minister of War and Marine)	Rear-Admiral O. P. Blanco
Netherlands . .	Mon. A. Q. H. Dyxhoorn (Minister of Defence)	Vice-Admiral J. T. Fürstner (C.-in-C.)
Norway . . .	Colonel Birger Ljungberg (Minister of Defence)	Rear-Admiral H. E. Diesen (C.-in-C.)
Paraguay . .	Commander D. Manuel Aponte (Director of Marine Dept.)	Lieut.-Commander Ramon Martino (Director General of the Navy)
Peru	Captain Rocque Sallias (Minister of Marine and Aviation)	Captain Fredirco Diaza Dulanto
Poland . . .	Rear-Admiral J. Swirski (Chief of Polish Navy)	—
Portugal . . .	Lieut.-Commander M. O. Bettencourt	Vice-Admiral J. A da Matta Oliveira
Rumania . . .	—	Captain I. Georgescu
Soviet Union .	Flagman Kuznetsoff (People's Commissar)	Flagman L. M. Galler
Spain . . .	Admiral Cervera	Vice-Admiral Francisco Bastivieche
Sweden . . .	T. E. Sköld (Secretary of State for Swedish Defence Forces)	Admiral C. F. Tamm

Country.	Minister of Marine.	Chief of Staff.
Thailand . . .	Luang Bipul (Minister of Defence)	Rear-Admiral Luang Sindhu
Turkey . . .	Captain Hümü Kokdenizer (Under-Secretary for the Navy)	Captain Safyeddin Dagada
United States .	Colonel Knox (Secretary of the Navy)	Admiral Harold R. Stark (Chief of Naval Operations)
Uruguay . . .	General Julio Cesar Rolotti (Minister of War and Marine)	Captain Gustavo Schroeder (Inspector General of Marine)
Venezuela . .	Commander Lavazaval (Head of the Navy)	—
Yugoslavia . .	Army General M. D. Nedić (Army and Navy Ministry)	Rear-Admiral T. T. Tijanić

BRITISH AND FOREIGN NAVAL ATTACHÉS.

BRITISH NAVAL ATTACHÉS ACCREDITED TO FOREIGN COUNTRIES.

To.	Name.	Appointed.	Headquarters.
Argentine, Brazil, Uruguay, Venezuela	Captain H. W. U. McCall	Nov. 12, 1938	Buenos Aires.
	Assistants, Commander D. S. McGrath	Aug., 1939	Rio di Janeiro.
	Lieutenant C. H. Pullen, R.N.V.R.	Oct. 7, 1939	,, ,,
Chile, Peru, Ecuador	Captain A. Domville	1940	Santiago.
	Assistant, Lieutenant-Commander R. V. Vaughan, R.N.V.R.	Sept. 3, 1939	,,
Greece, Bulgaria	Rear-Admiral C. E. Turle, D.S.O.	June, 1940	Athens.
	Assistant, Lieutenant Sir T. Blomefield, Bart., R.N.V.R.	Dec., 1939	,,
Japan, China	Captain D. N. C. Tufnell, D.S.C.	Dec. 17, 1938	Tokyo.
	Assistant, Pay-Lieutenant W. R. Michell	July, 1940	,,
Norway	Rear-Admiral H. Boyes, C.M.G., C.I.E.	Aug. 24, 1939	London.
Portugal	Captain H. D. Owen	Oct. 8, 1938	Lisbon.
	Assistant, Lieutenant F. Stilwell, R.N.V.R.	Dec., 1939	,,
Spain	Captain A. H. Hillgarth, O.B.E.	Aug. 30, 1939	Madrid.
	Assistants, Lieutenant-Commander M. H. Scott		
	Lieutenant G. Beare, R.N.V.R.	Nov., 1939	,,
Sweden and Finland	Captain H. M. Denham	May 25, 1940	Stockholm.
Thailand	Commander L. N. Brownfield (S.O. (O.), Singapore)	Jan. 25, 1939	Bangkok (non-resident).
Turkey	Captain G. E. M. O'Donnell, D.S.O.	July 6, 1939	Ankara.
U.S.A., Mexico, Panama, Cuba	Rear-Admiral H. Pott, M.V.O.	June, 1940	Washington.
	Assistants, Captain A. W. Clarke	July, 1940	,,
	Commander (E) F. J. A. Coleby	Oct. 1, 1937	,,
U.S.S.R.	Captain H. Clanchy	Oct. 24, 1936	Moscow.
Yugoslavia, Rumania	Captain M. C. Despard, D.S.C.	Oct., 1939	Bucharest.

FOREIGN NAVAL ATTACHÉS ACCREDITED TO GREAT BRITAIN.

Argentina : Captain Jose S. Zuloaga.
Brazil : (Naval Agent) Engineer-Captain Natal Arnaud.
China : Captain Lung Yung Hsien.
Finland : Captain Holger Grondahl.
France : Vice-Admiral E. H. D. Muselier (Commander of Free French Navy).
Greece : Captain S. Mateezis.
Japan : Captain Taiichiro Kondo.
Commander M. Yoshii (Assistant).
Netherlands : Lieut.-Commander A. de Booy.
Norway : Commander J. E. Jacobsen.
Poland : Captain Tadewsz Stoklasa.
Sweden : Kom-Kapten N. J. Wesstrom.
Thailand : Colonel Mom Snidvongse Senni.
Turkey : Commander Siret Cakir.
United States : Captain Alan G. Kirk.
Captain G. W. Nelson, (C.C.).
Commander N. R. Hitchcock } Assistants.
Lieut.-Commander W. B. Ammon.
Yugoslavia : Brigadier-General Milroad Radović.

PICTORIAL SECTION

Comprising

SILHOUETTES OF WARSHIPS

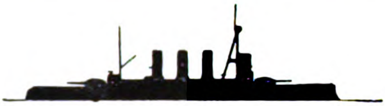
PLANS AND ELEVATIONS OF WARSHIPS

PROFILES OF
BRITISH AND FOREIGN WARSHIPS

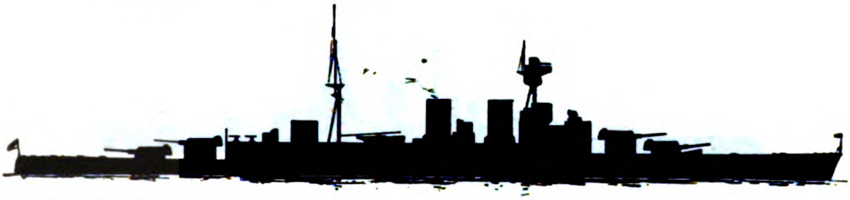
CAPITAL SHIPS.

[In order to facilitate identification, the ships are arranged in accordance **with the number of funnels and masts,** as these are the features most easily distinguished at a distance. Dimensions and particulars of British and foreign warships will be found on pp. 215–262. All the profiles are drawn to the scale $\frac{1}{3}$ in. = 100 ft.]

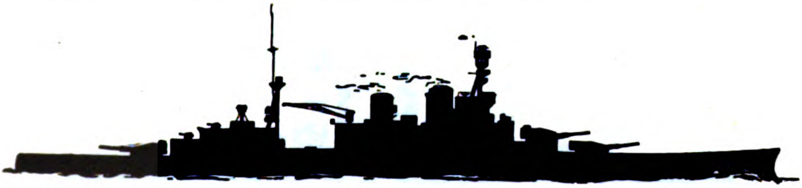
[Indexes to the names of vessels of which profiles are included in this section are given at the end of the volume.]



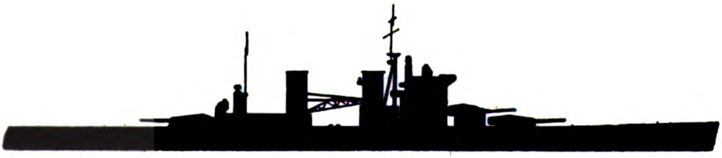
SWEDEN. Battleship. Oscar II.
(A searchlight is fitted on each mast.)



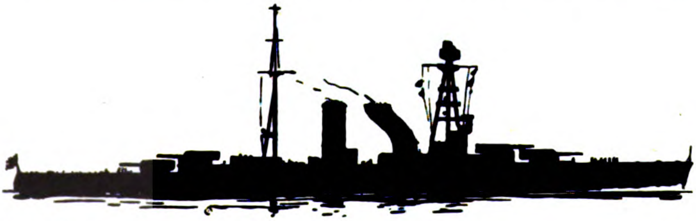
GREAT BRITAIN. Battle-cruiser. Hood.
(Fore topgallant mast has been added and bridge structure modified.)



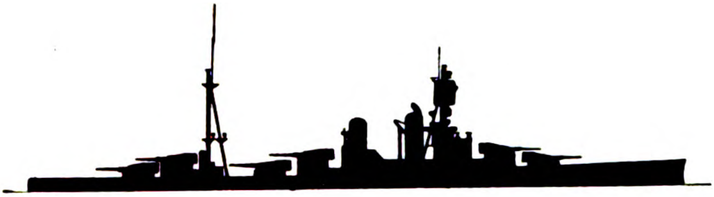
GREAT BRITAIN. Battle-cruiser. Repulse (after reconstruction 1936).
Renown similar.
Fore topmast removed.



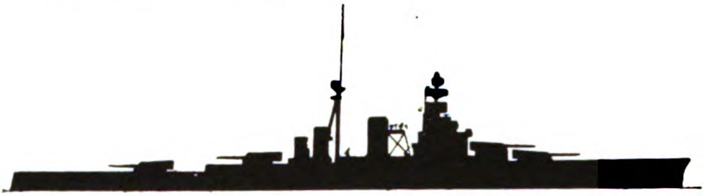
GREAT BRITAIN. Battleships. King George V., Prince of Wales, Duke of York, Jellicoe, Beatty.



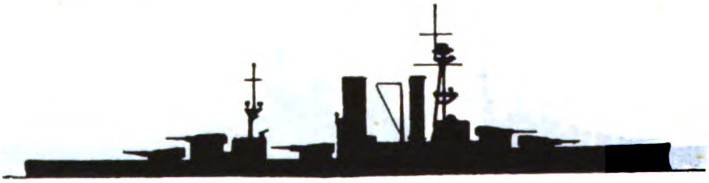
JAPAN. Battleships. Mutsu, Nagato.
Single funnel fitted and catapult added between mainmast and "X" turret.
Superstructure built round mainmast.
Bridgework modified.
Main topgallant mast removed.



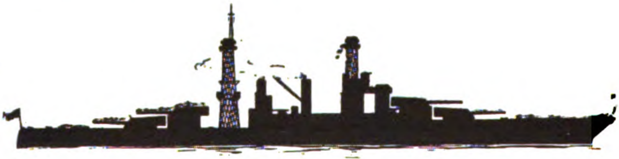
JAPAN. Battleships. Ise, Hyuga.
Fore funnel and topmast removed.
Bridgework modified.
Superstructure built round mainmast.
Main topgallant mast removed.



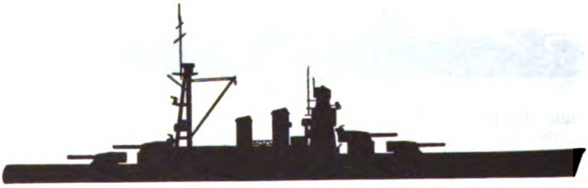
JAPAN. Battleships. Haruna, Kirishima, Kongo.
Haruna and Kongo have funnels of equal height.
Derricks fitted between X and Y turrets.



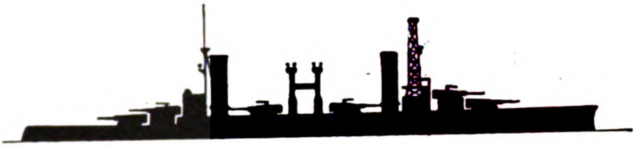
CHILE. Battleship. Almirante Latorre.
(Modernised 1931—mainmast raised and bridge work altered.)
Catapult fitted on quarter deck.



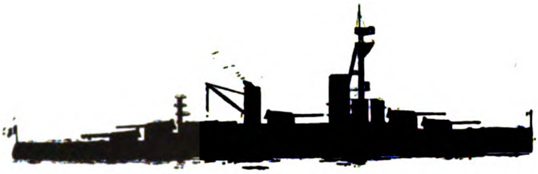
UNITED STATES. Battleships. California, Colorado, Maryland, Tennessee, West Virginia.
(Now fitted with 2 catapults, one on "X" turret and one on the quarter deck.
Crane fitted at stern.
Maryland has range-finder fitted on B turret.



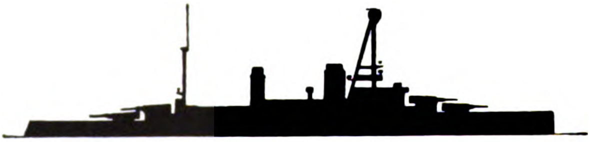
ITALY. Battleships. Conte di Cavour, Giulio Cesare, Andrea Doria, Caio Duilio.



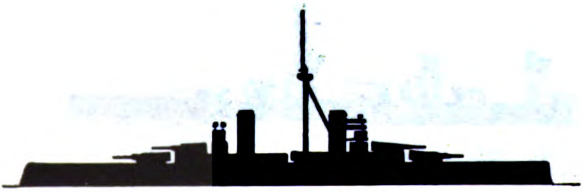
ARGENTINA. Battleships. Moreno, Rivadavia.
Guns on B and X turrets replaced by range-finders.



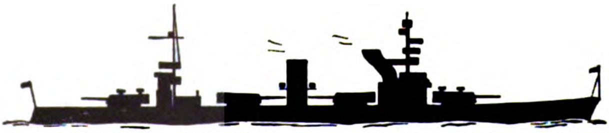
FRANCE. Battleships. Bretagne, Lorraine, Provence.
NOTE.—Lorraine has been modernised. The midships turret has been removed and replaced by a hangar and catapult. Cranes fitted abreast after funnel. Bridgework extended. Fore topmasts removed, main topmasts fitted.



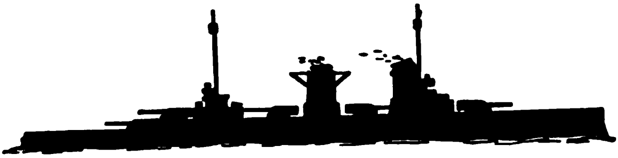
FRANCE. Battleships. Courbet, Paris.
Cranes fitted abreast after funnel.
After funnel reduced in height.
Range-finder fitted on B turret.



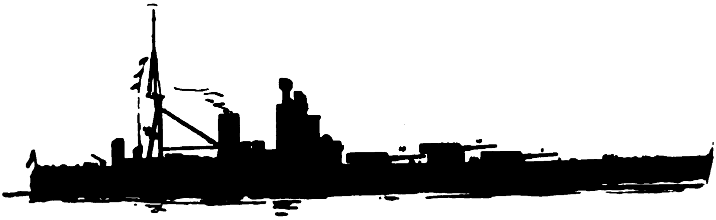
BRAZIL. Battleships. Minas Geraes, São Paulo.
Forward funnel removed and bridgework modified.
Remaining funnel made larger.



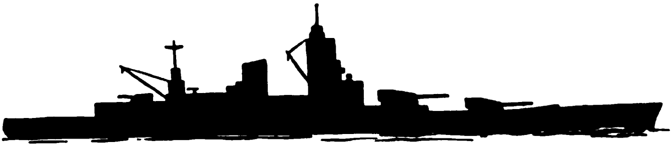
SOVIET UNION. Battleships. Marat, Paris Commune and October Revolution.
Two derricks fitted between mainmast and turret in Marat and Paris Commune.
Crane fitted abreast mainmast in October Revolution.



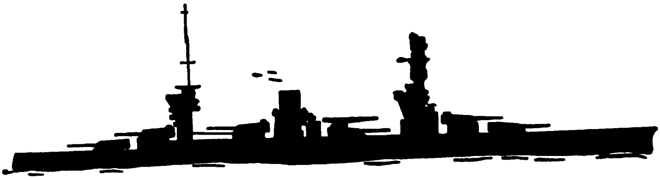
TURKEY. Battle-cruiser. Yavouz Sultan Selim.



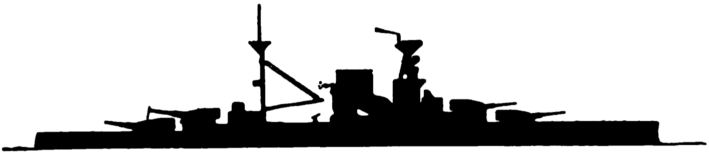
GREAT BRITAIN. Battleships. Nelson, Rodney.
Nelson has a crane amidships.
Rodney has a catapult fitted on C turret.
Mast structure increased.



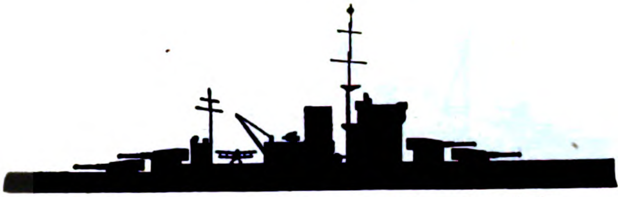
FRANCE. Battleships. Dunkerque, Strasbourg.
Catapult fitted on quarter deck. Crane is moved aft to break of deck.
Main topgallant mast fitted.



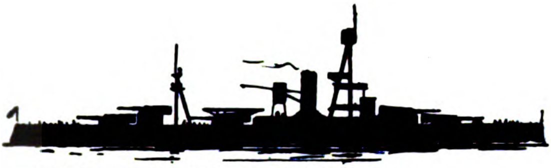
JAPAN. Battleships. Fuzo and Yamashiro.
(After reconstruction, 1934.)
A.A. guns fitted abreast mainmast.



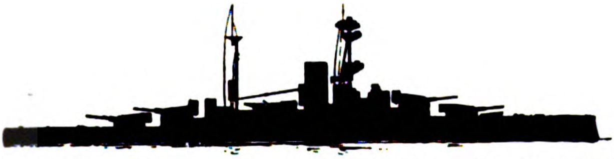
GREAT BRITAIN. Battleships. Barham, Malaya.
NOTE.—Barham has tripod mainmast and catapult on "X" turret.
Fore topmast removed.
Malaya has catapult before mainmast; Derrick on mainmast removed
Hangar and cranes fitted abreast funnel.
Sternwalk fitted in Barham.



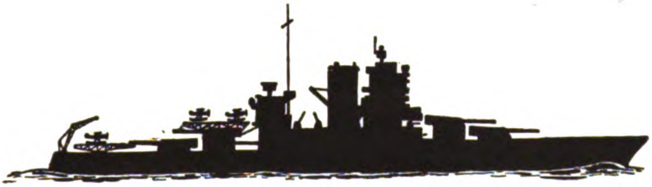
GREAT BRITAIN. Battleships. Warspite, Queen Elizabeth, Valiant.
Sternwalks fitted in Warspite and Queen Elizabeth.



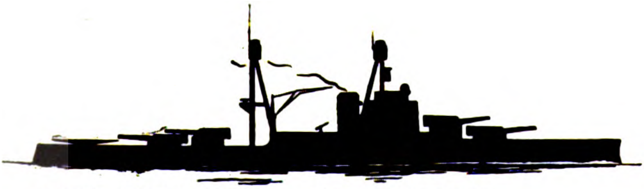
UNITED STATES. Battleships. New York, Texas.
Fore topmast removed; Mastheads modified and fitted with machine-guns. Range-finder fitted on B and X turrets.



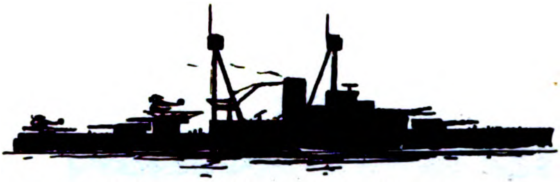
GREAT BRITAIN. Battleships. Ramillies, Resolution, Revenge, Royal Sovereign.
NOTE.—Resolution has a smoke deflector on the funnel. Ramillies and Resolution have tripod mainmasts, a catapult on "X" turret and a crane abreast mainmast.
Main topgallant mast fitted. Fore topmast removed.



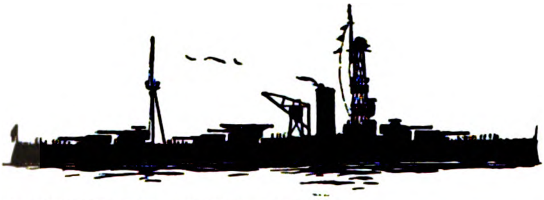
UNITED STATES. Battleships. Idaho, Mississippi, New Mexico.
(After modernisation, 1934.)



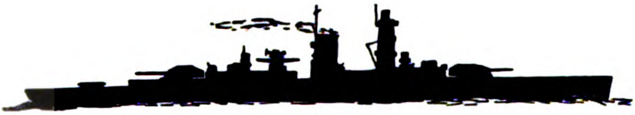
UNITED STATES. Battleships. Arizona, Pennsylvania.
Catapult on "X" turret added. Crane fitted at stern. Main topmast is on fore side of mast structure.



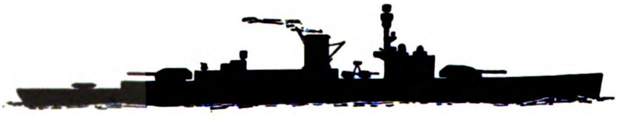
UNITED STATES. Battleships. Nevada, Oklahoma.
Bridgework extended and mastheads modified.



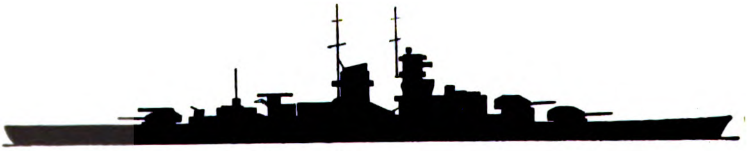
UNITED STATES. Battleship. Arkansas.



GERMANY. Armoured Ship. Admiral Scheer.

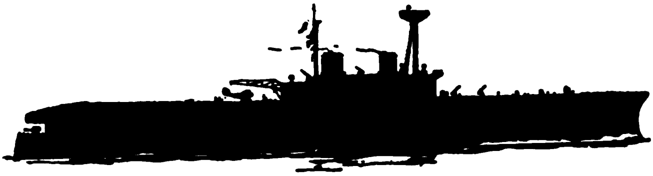


GERMANY. Armoured Ship. Lutzow (*ex*-Deutschland).
Pole mast fitted on aft side of funnel. Catapult fitted abaft funnel.
Fore topmast fitted.
Pole mast fitted on after superstructure.

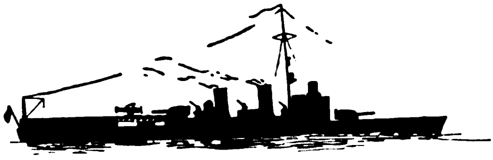


GERMANY. Battle Cruisers. Scharnhorst, Gneisenau.
Gneisenau has a vertical stempiece.

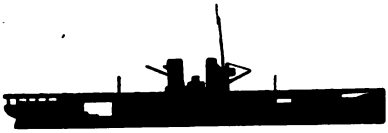
AIRCRAFT AND SEAPLANE CARRIERS AND TENDERS.



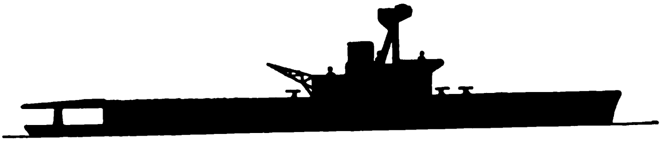
GREAT BRITAIN. Aircraft Carrier. Eagle.
Fore topmast added and mast structure modified.
Signal mast added forward.



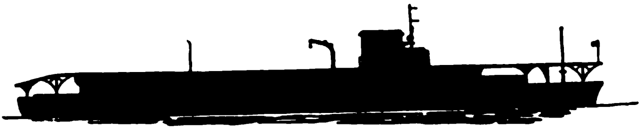
SWEDEN. Aircraft Cruiser. Gotland.



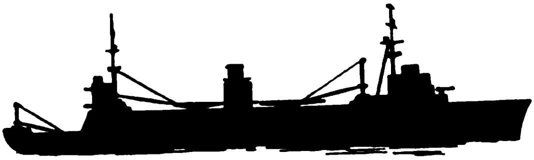
ITALY. Seaplane Carrier. Miraglio.



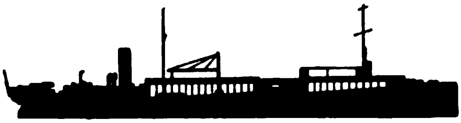
GREAT BRITAIN. Aircraft Carrier. Hermes.
Topmast and signal mast forward added. Flight deck extended aft.



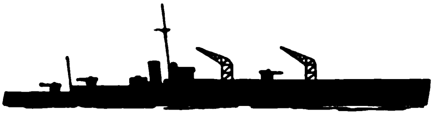
FRANCE. Aircraft Carrier. Béarn.
Space between flight deck and upper deck forward partially blanked off.
Framework fitted on aft side of funnel.



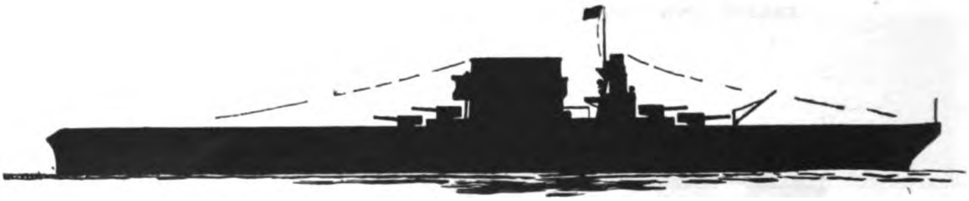
FRANCE. Aviation Transport. Commandant Teste.



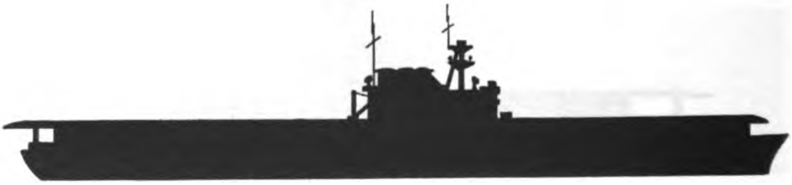
JAPAN. Seaplane Carrier. Notoro.



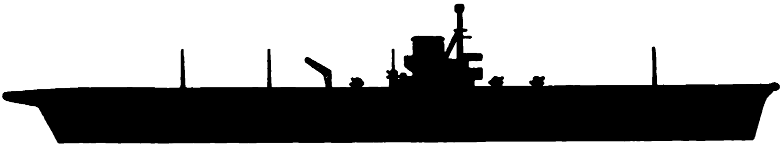
GREAT BRITAIN. Seaplane Carrier. Albatross.
Catapult fitted forward.



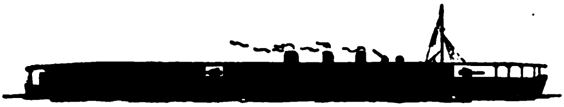
UNITED STATES. Aircraft Carriers. Saratoga, Lexington.
Lexington has platform round top of funnel.



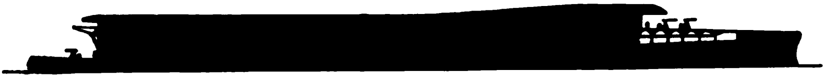
UNITED STATES. Aircraft Carriers. Enterprise, Yorktown, Hornet.



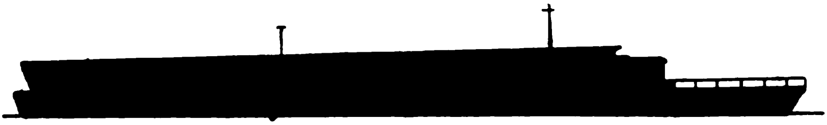
GREAT BRITAIN. Aircraft Carrier. Ark Royal.



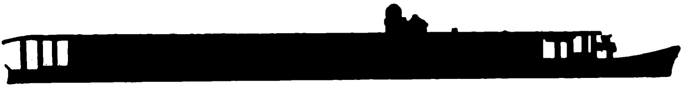
JAPAN. Aircraft Carrier. Hosho.
Funnels hinge outboard.



GREAT BRITAIN. Aircraft Carrier. Furious.
Three wireless masts added each side of flight deck.
Quarter deck has been raised one deck.
Platform built on flight deck forward.

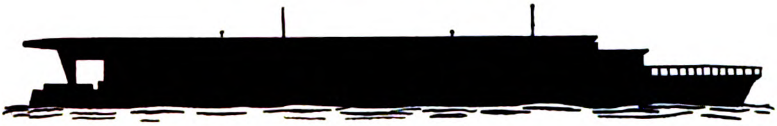


JAPAN. Aircraft Carrier. Akagi.
Superstructure added and flight deck extended forward.

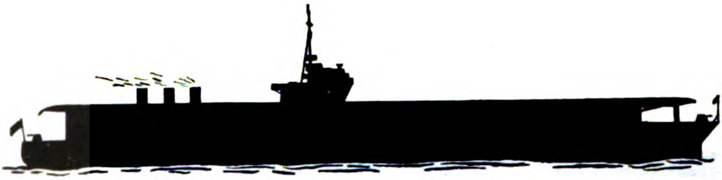


JAPAN. Aircraft Carriers. Soryu, Hiryu, Koryu.

AIRCRAFT CARRIERS.

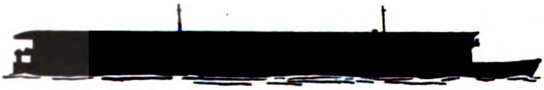


JAPAN. Aircraft Carrier. Kaga.
Superstructure added and flight deck extended forward.



UNITED STATES. Aircraft Carrier. Ranger.
(NOTE.—Funnels hinge outboard.)
Signal masts fitted at ends of flight deck.

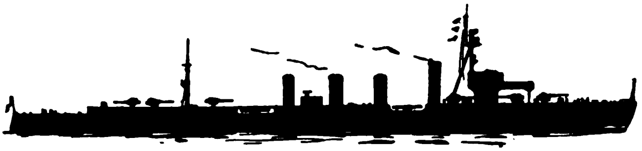
GREAT BRITAIN. Aircraft Carrier. Argus. (Training Ship.)
Flight deck levelled forward.



JAPAN. Aircraft Carrier. Ryujo.

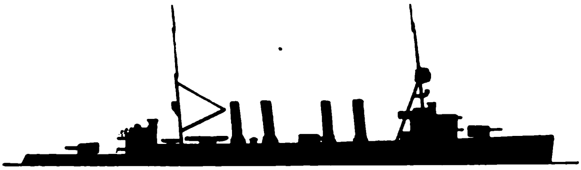
UNITED STATES. Aircraft Tender. Langley.
Foremost third of flight deck removed.
Two pole masts fitted.
Bridge and Derricks fitted forward.

CRUISERS AND COAST DEFENCE SHIPS.



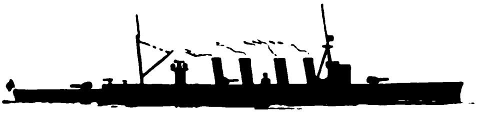
JAPAN. Cruisers. ("Sendai" class.) Naka, Sendai, Jintsu.

Catapult fitted abaft mainmast. Aircraft platform forward removed.
The mainmast is of tripod construction and is fitted with a derrick on its after side.

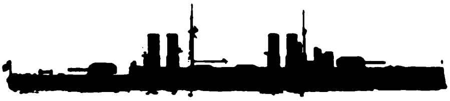


UNITED STATES. Scout Cruisers. ("Omaha" class.) Cincinnati, Concord, Detroit, Marblehead, Memphis, Milwaukee, Omaha, Raleigh, Richmond, Trenton.

There are small differences in the arrangement of guns aft.
Topmasts shortened.

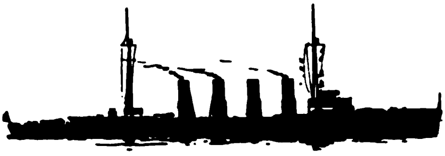


ROYAL AUSTRALIAN NAVY. Cruiser. Adelaide.

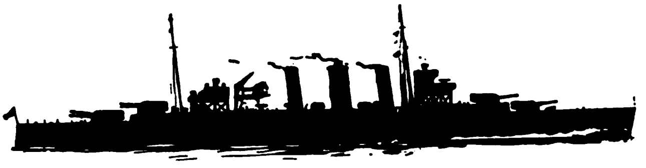


ITALY. Armoured Cruiser. (Classified as Battleship, 2nd class, in Italian official lists.) San Giorgio.

Foremost and aftermost funnels removed.

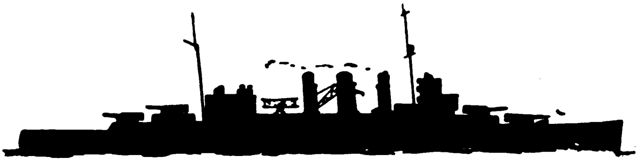


ITALY. Light Cruiser. Taranto (*ex*-German Strassburg).



GREAT BRITAIN. Cruisers. ("London" class.) Devonshire, London, Shropshire, Sussex. ("Norfolk" class.) Dorsetshire, Norfolk.

Fore topgallant mast added.

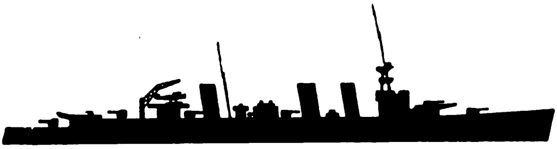


GREAT BRITAIN. Cruisers. ("Kent" class.) Cumberland, Suffolk, Kent, Berwick, Cornwall.

Kent has a sternwalk.
Kent, Berwick and Cornwall are flush-decked.

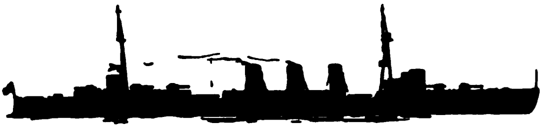
Royal Australian Navy. Cruisers. ("Kent" class.) Australia, Canberra.

No hangars fitted.



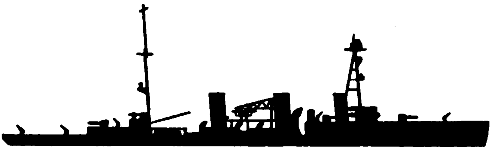
GREAT BRITAIN. Cruisers. ("E" class.) Emerald, Enterprise.

In **Enterprise** the forward 6-in. guns are in a twin mounting on the forecastle deck.

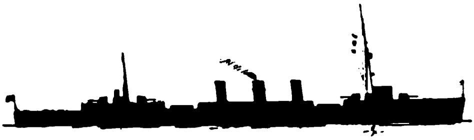


JAPAN. Light Cruisers. ("Kuma" class.) Kiso, Kitakami, Kuma, Oi, Tama.
("Natori" class.) Isudzu, Natori, Nagara, Yura, Kinu, Abukuma.

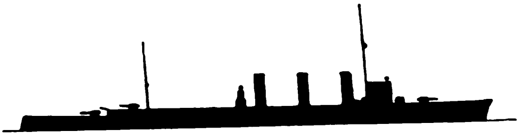
Catapult fitted before mainmast. The mainmast is of tripod construction and is fitted with a derrick on its fore side.



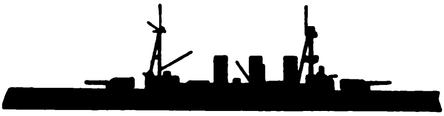
SOVIET UNION. Cruisers. Profintern, Chervonnaya Ukraina.



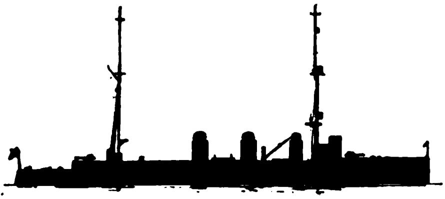
JAPAN. Light Cruisers. ("Tenryu" class.) Tatsuta, Tenryu.



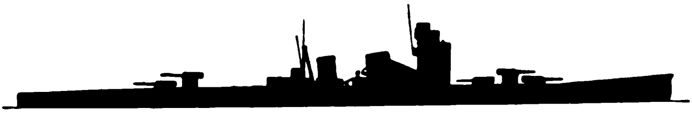
SPAIN. Light Cruiser. Mendez Nuñez.
Foremast is tripod. Fore topgallant mast added.
A.A. armament fitted between second funnel and mainmast.
Searchlight platform fitted round after funnel.



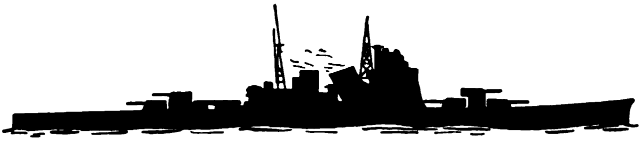
GREECE. Cruiser. Averoff.



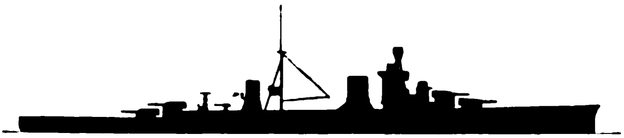
ITALY. Scout Cruiser. Quarto.



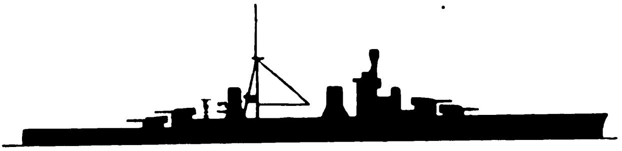
JAPAN. Cruisers. (" Nachi " class.) Nachi, Myoko, Ashigara, Haguro.
Catapult fitted abaft mainmast.



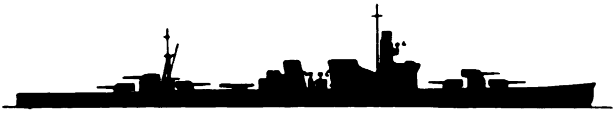
JAPAN. Cruisers. ("Takao" class.) Takao, Atago, Chokai, Maya.



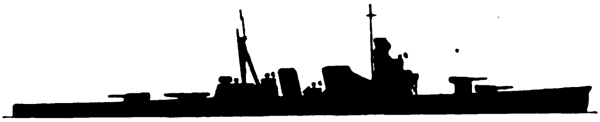
ITALY. Cruiser. (Modified " Trento " class.) Bolzano.
Forward superstructure faired into funnel. Catapult fitted amidships.
Clinker screens fitted to funnels.



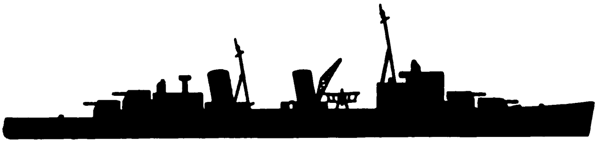
ITALY. Cruisers. ("Zara" class.) Pola, Zara, Fiume, Gorizia.
Forward superstructure faired into funnel. Catapult fitted forward.
Clinker screens fitted to funnels.
Range-finder fitted abaft after funnel.



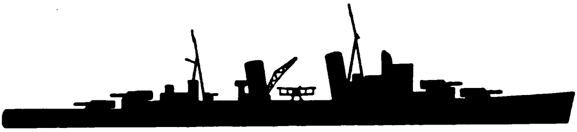
JAPAN. Cruisers. ("Furutaka" class.) Furutaka, Kato.
The tops of the funnels are square to the funnels.
Pole mast raked.



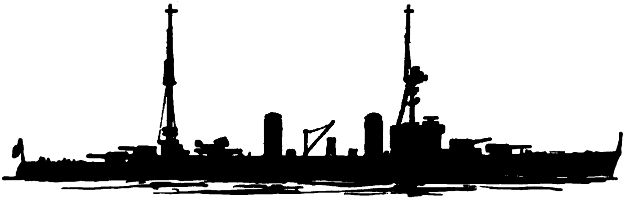
JAPAN. Cruisers. ("Furutaka" class.) Aoba, Kinugasa.
The tops of the funnels are square to the funnels.
Pole mast raked.



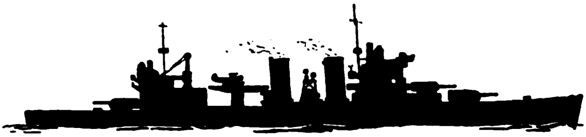
GREAT BRITAIN. Cruisers. (Improved "Southampton" class.) Belfast, Edinburgh.



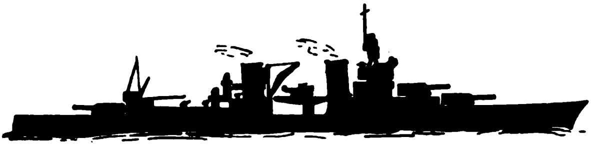
GREAT BRITAIN. Cruisers. ("Southampton" class.) Southampton, Newcastle, Sheffield, Birmingham, Glasgow, Gloucester, Liverpool, Manchester.



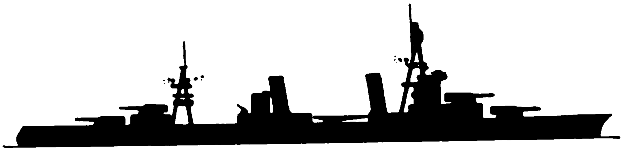
FRANCE. Cruisers. ("Duquesne" class.) Duquesne, Tourville. ("Suffren" class.) Suffren, Colbert, Foch, Dupleix.
Colbert, Dupleix and Foch have tripod mainmasts and the catapults between the funnels.
Fore topmast shortened in Foch, Duquesne and Tourville and removed in Dupleix and Colbert.



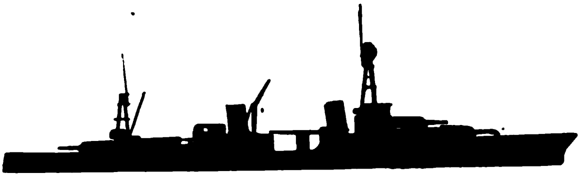
UNITED STATES. Cruisers. ("Astoria" class.) Astoria, New Orleans, Minneapolis, San Francisco, Tuscaloosa, Quincy, Vincennes.



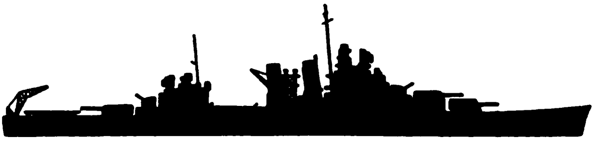
UNITED STATES. Cruisers. Portland, Indianapolis.
Foremost funnel and fore topmast are raised.



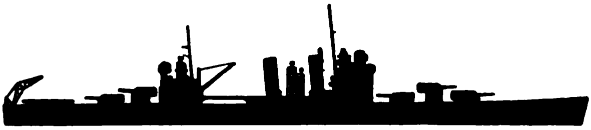
UNITED STATES. Cruisers. ("Pensacola" class.) Salt Lake City, Pensacola.
Crane fitted on fore side of after funnel and derricks on after side.



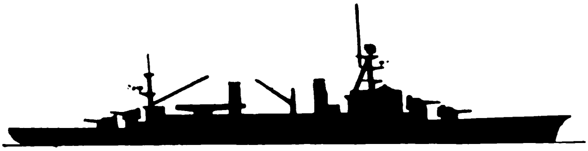
UNITED STATES. Cruisers. ("Chester" class.) Northampton, Chester, Louisville. ("Augusta" class.) Chicago, Houston, Augusta.
Foremost funnel raised and fore topmast shortened.



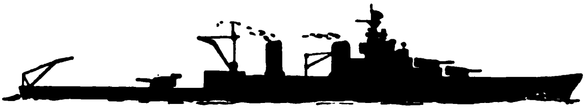
UNITED STATES. Cruiser. Wichita.



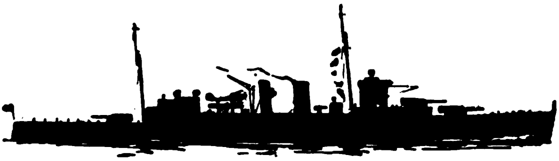
UNITED STATES. Cruisers. Boise, Brooklyn, Helena, Honolulu, Nashville, Philadelphia, Phœnix, Savannah, St. Louis.



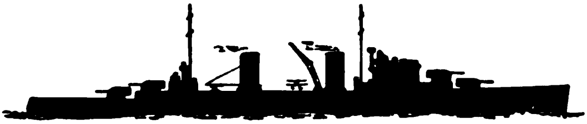
FRANCE. Training Cruiser. Jeanne d'Arc.
The catapults and fore topmast are removed.



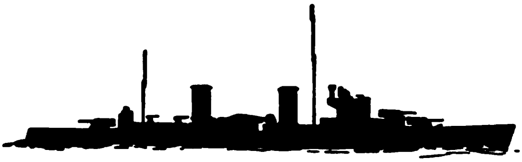
FRANCE. Cruisers. Jean-de Vienne, La Galissonnière, Marseillaise, Gloire, Montcalm, Georges Leygues.
Catapult fitted on after turret.



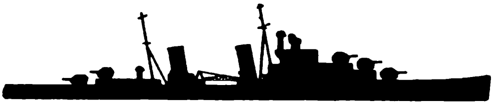
GREAT BRITAIN. Cruisers. York, Exeter. ("York" class.)
(In Exeter the funnels and masts are vertical.)
Forward funnel has been modified.



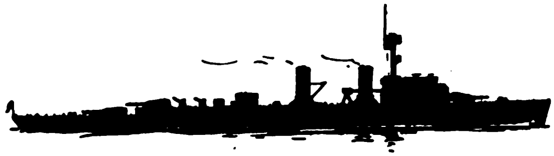
COMMONWEALTH OF AUSTRALIA. Cruisers. (Modified "Leander" class. Perth, Hobart, Sydney.
Catapult fitted between funnels.



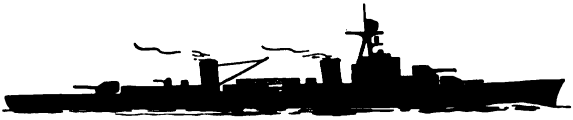
GREAT BRITAIN. Cruisers. ("Arethusa" class.) Arethusa, Galatea, Penelope, Aurora.
Derrick fitted on aft side of after funnel.



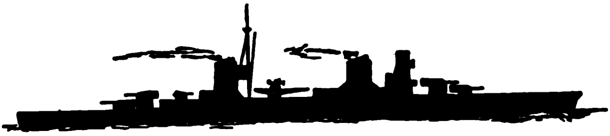
GREAT BRITAIN. Cruisers. "Dido" Class. Bonaventure, Charybdis, Cleopatra, Dido, Euryalus, Hermione, Scylla, Sirius.



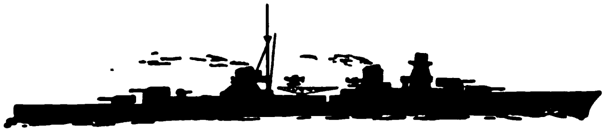
GERMANY. Light Cruisers. Köln.
Polemast fitted on aft side of after funnel. Catapult fitted between funnels.



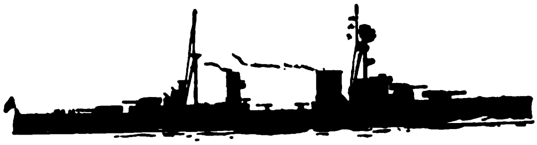
FRANCE. Cruiser Minelayer. Emilé Bertin.
Derrick fitted on fore side of catapult.
Searchlight platform built round after funnel.
Small mast fitted on fore side of after turret.



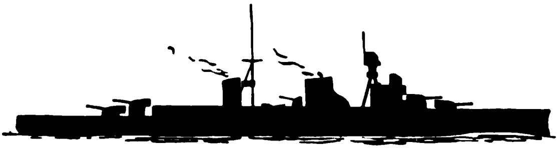
ITALY. Cruisers. ("Condottieri" class.) Montecuccoli, Muzio Attendolo.



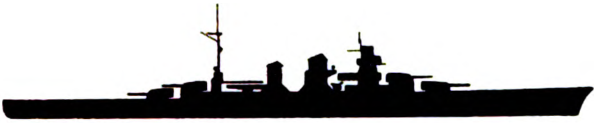
ITALY. Cruisers. ("Attendolo" class.) Eugenio di Savoia, Filiberto Duca d'Aosta.



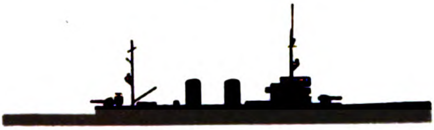
ITALY. Cruisers. ("Condottieri" class.) Alberico de Barbiano, Alberto di Giussano, Giovanni della Bande Nere.
Fore topmast and stays to mainmast removed.
Derrick fitted on fore side of mainmast. Bridgework extended.



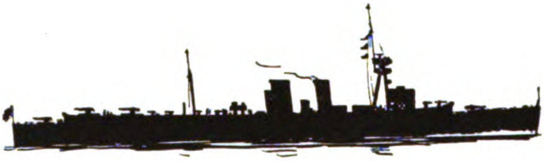
ITALY. Cruisers. ("Condottieri" class.) Armando Diaz, Luigi Cadorna.
Fore topmast removed. Catapult fitted between after funnel and "X" turret.
Derrick fitted on fore side of mainmast.



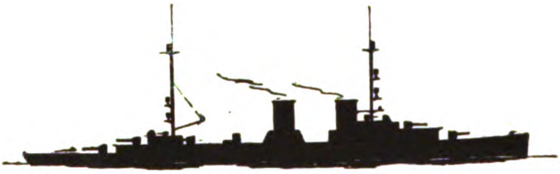
ITALY. Cruisers. Duca degli Abruzzi, Guiseppe Garibaldi.



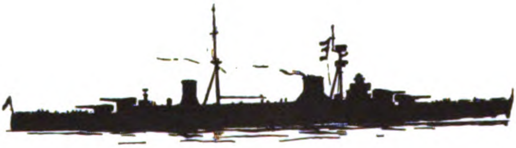
ITALY. Cruiser. Bari (*ex*-German Pillau).



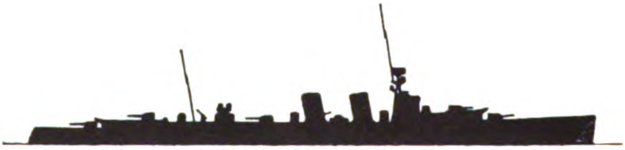
GREAT BRITAIN. Cruiser Minelayer. Adventure. (Stern has been extended.)
Derricks added abreast masts.



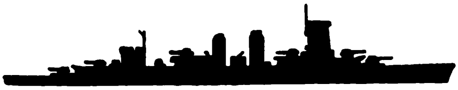
NETHERLANDS. Cruisers. Java, Sumatra.
Fore topmast shortened and foremast made larger.
Mainmast shortened, moved forward and fitted with derrick and searchlights.
Aircraft stowed between funnels and crane fitted.



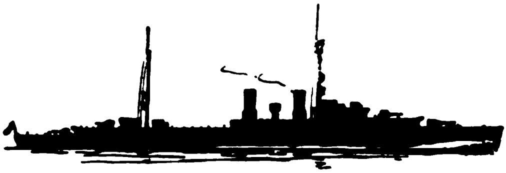
ITALY. Cruisers. ("Trento" class.) Trento, Trieste.
Fore topmast removed.
Bridgework extended.



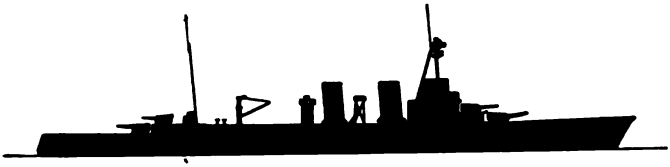
SPAIN. Cruisers. Galicia, Almirante Cervera, Miguel de Cervantes.
The mainmasts are tripods.
Fore topmast and topgallant mast removed.



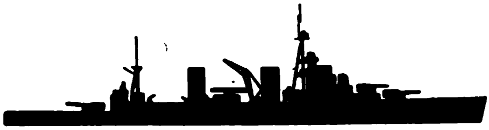
SPAIN. Cruiser. Navarra (*ex*-**Republica**).



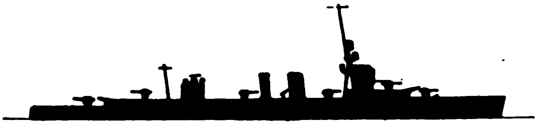
GERMANY. Light Cruiser. Emden.
Pole mast fitted on aft side of after funnel.
Superstructure added before mainmast. Fore topmast shortened.
Mainmast shortened and surmounted by a searchlight platform.



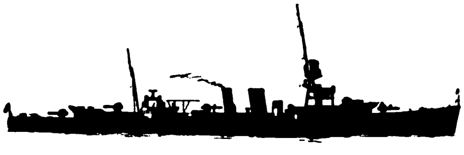
FRANCE. Cruisers. (" Duguay-Trouin " class.) La Motte Picquet, Duguay-Trouin Primauguet.
Catapult fitted on quarter deck.
Fore topmast removed and mast head modified.



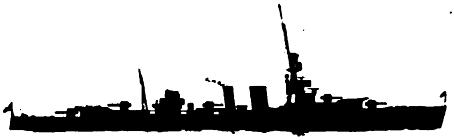
ARGENTINA. Cruiser. La Argentina.



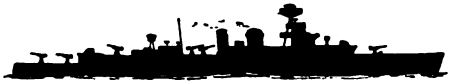
GREAT BRITAIN. Cruisers. (" D " class.) Danae, Dauntless, Dragon.
Main topmast added.



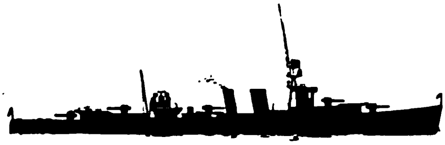
GREAT BRITAIN. Cruisers. (" D " class: repeat vessels.) Delhi, Dunedin, Diomede, Despatch, Durban.
Foremost gun in Diomede is housed in a gunhouse.
Topmasts removed.



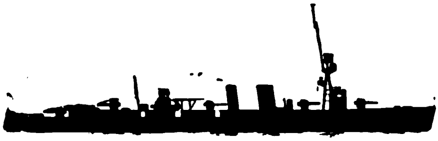
GREAT BRITAIN. Cruisers. ("Ceres" class.) Cardiff, Ceres, Curacoa.
For Coventry, see below.



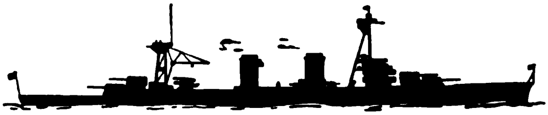
GREAT BRITAIN. Anti-Aircraft Cruisers. ("Ceres" class.) Coventry (as re-armed 1935). ("Carlisle" class.) Cairo, Calcutta, Colombo, Capetown, when finished.



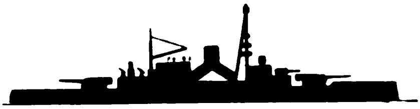
GREAT BRITAIN. Cruiser. Carlisle.
Topmast removed.



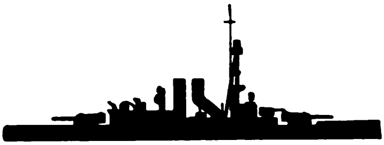
GREAT BRITAIN. Cruisers. ("Caledon" class.) Caledon, Caradoc.



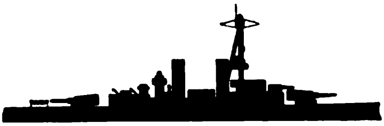
SOVIET UNION. Cruiser. Krasni Kavkaz.
Catapult fitted between mainmast and funnel.
A.A. guns fitted between funnels.



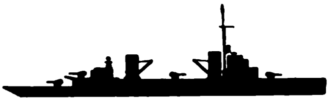
SWEDEN. Coast Defence Ship. Gustav V.
Fore topmast added. Bridgework enlarged.
Mainmast and derrick removed.



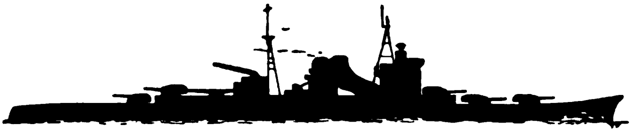
SWEDEN. **Coast Defence Ship.** **Sverige.**



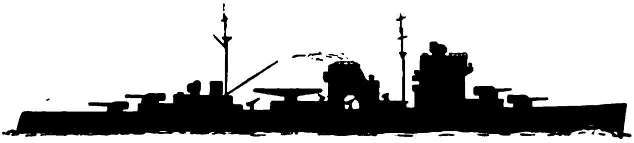
SWEDEN. **Coast Defence Ship.** **Drottning Victoria.**



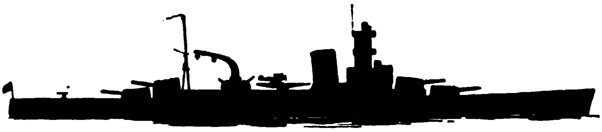
GERMANY. **Gunnery Training Ship.** **Bremse.**



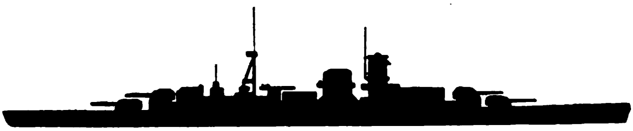
JAPAN. **Cruisers.** **Mikuma, Mogami, Suzuya, Kumano, Tone, Tikuma.**



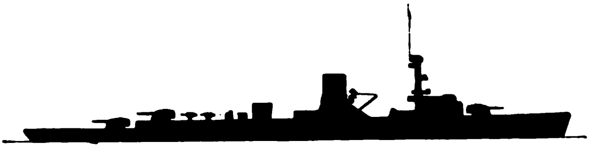
SPAIN. **Cruiser.** **Canarias.**
Masts removed.



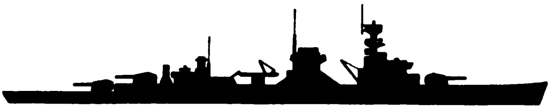
FRANCE. **Cruiser.** **Algérie.**
Superstructure amidships added.
Crane replaced by two others.



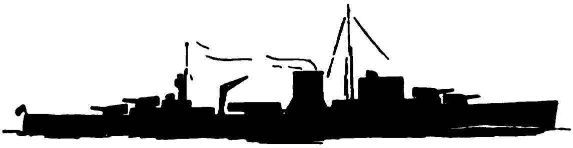
GERMANY. Cruiser. Admiral Hipper.



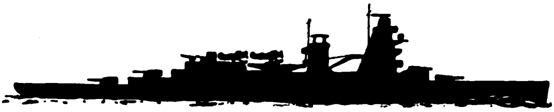
GERMANY. Light Cruiser. Leipzig.
Polemast fitted on aft side of funnel. Catapult fitted between funnel and foremast. Crane fitted on fore side of funnel. Fore topmast shortened.



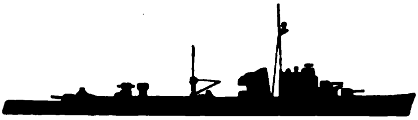
GERMANY. Light Cruiser. Nurnberg.



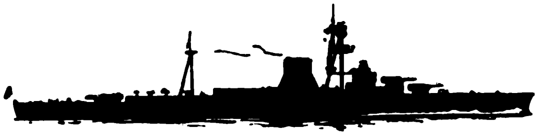
GREAT BRITAIN. Cruisers. ("Leander" class.) Leander, Achilles, Neptune, Orion, Ajax.



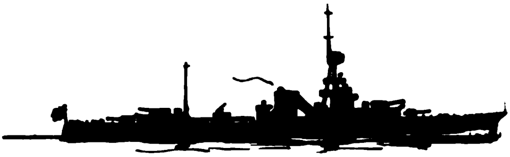
NETHERLANDS. Cruiser. De Ruyter.
Funnel top modified.



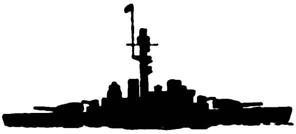
NETHERLANDS. Cruisers. Tromp, Heemskerck.



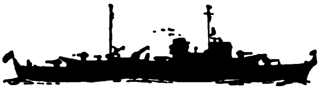
ARGENTINA. Cruisers. Almirante Brown, Vinticinco de Mayo.
Fore topmast shortened, main topmast lengthened.
Derrick fitted on fore side of mainmast.
Searchlight platform fitted on mainmast.
Superstructure built on aft side of mainmast.



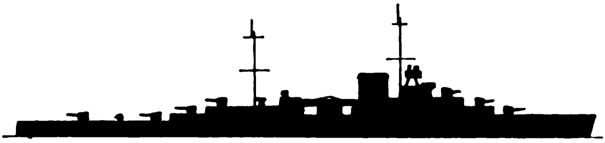
JAPAN. Light Cruiser. Yubari.
Masts and funnel raked aft.



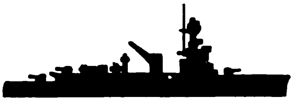
FINLAND. Armoured Gunboats. Vainämöinen, Ilmarinen.



NORWAY. Minelaying and Training Ship. Olav Trygvason.
Both cranes are fitted abreast mainmast.



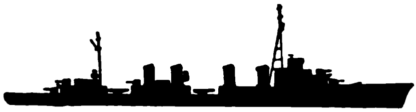
GREAT BRITAIN. Cruisers. Frobisher, Hawkins.



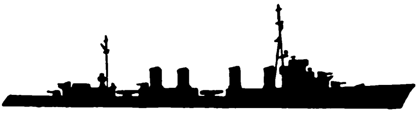
DENMARK. Cruiser. Niels Juel.

FLOTILLA LEADERS AND DESTROYERS

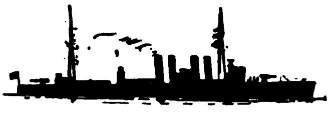
(See pp. 271–304.)



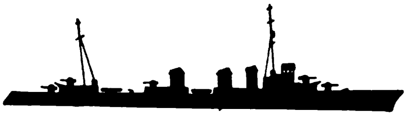
FRANCE. Flotilla Leaders. Cassard, Vauquelin, Kersaint, Tartu, Le Chevalier Paul, Aigle, Albatros, Epervier, Milan, Gerfaut, Vautour.



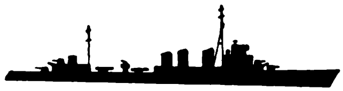
FRANCE. Flotilla Leaders. Guépard, Lion, Vauban, Valmy, Verdun.



UNITED STATES. Destroyers. The "Flush Deck" type; all U.S. destroyers except those with three funnels.
Mainmast shortened.
Also, Great Britain—"Town" class.

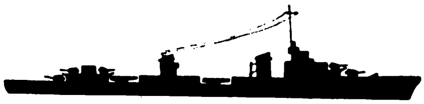


FRANCE. Flotilla Leaders. Tigre, Léopard, Lynx.
Platform added before after turrets.

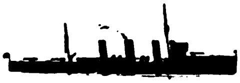


FRANCE. Destroyers. Mistral, Ouragon, Simoun, Tempête, Tramontane, Typhon, Trombe, Tornado.

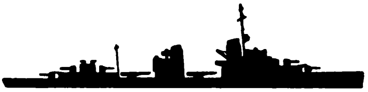
POLAND. Destroyer. Burza is similar.
Mainmast shortened.



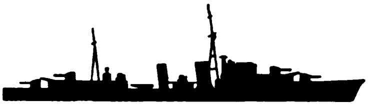
FRANCE. Flotilla Leaders. "Le Fantasque" class (6 ships). **L'Audacieux, Le Malin, Le Terrible, Le Triumphant, L'Indomitable.**
Control platform added abaft after funnel.



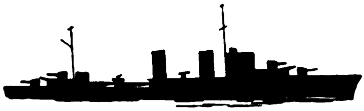
ITALY. Destroyers. Gen. A. Cantore, Gen. A. Chinotto, Gen. A. Papa, Gen. A. Cascino, Gen. M. Prestinari, Gen. C. Montanari, A. Bassini, E. Cosenz, F. Stocco, G. Carini, G. Medici, G. Acerbi, G. la Farina, G. la Masa, G. Sirtoti, N. Fabrizi, V. Orsini.
Bridgework extended.



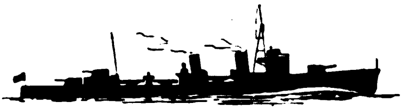
GERMANY. Destroyers. "Maass" class.



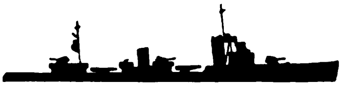
GREAT BRITAIN. Destroyers. "Tribal" class.



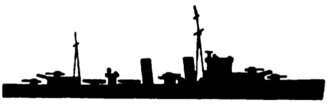
YUGO SLAVIA. Flotilla Leader. Dubrovnik.



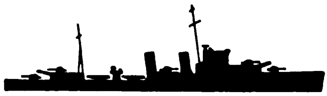
JAPAN. 1st Class Destroyers. "Fubuki" class. (23 ships.)



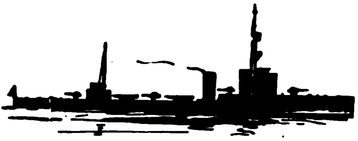
ITALY. Flotilla Leaders (Scouts). "Navigatori" class. A. da Mosto, etc. (12 ships.)
Mainmast lengthened.



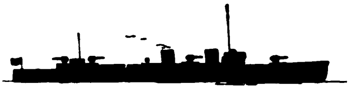
GREAT BRITAIN. Flotilla Leader. Inglefield.



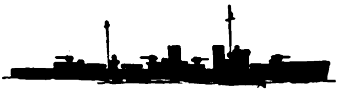
GREAT BRITAIN. Flotilla Leader. Faulknor.



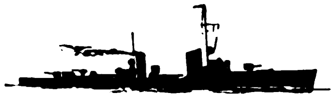
ITALY. Flotilla Leaders (Scouts). Leone, Pantera, Tigre.



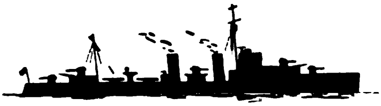
JAPAN. 1st Class Destroyers. "Mutsuki" class (12 ships), and "Kamikase" class (9 ships).



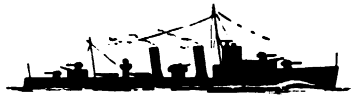
JAPAN. 1st class Destroyers. "Minekase" class (15 ships).



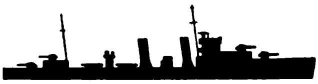
GERMANY. Destroyers. Iltis, Wolf, Tiger, Luchs, Jaguar, Leopard, Seeadler, Greif, Albatros, Kondor, Falke, Möwe.



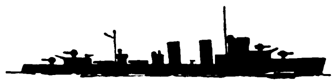
GREAT BRITAIN. Flotilla Leader. Codrington.



GREAT BRITAIN. Destroyers. "Acasta," "Beagle," "Crusader" and "Defender" classes.
"Acasta" and "Crusader" classes have davits at stern.
Flotilla Leaders. Duncan, Kempenfelt.

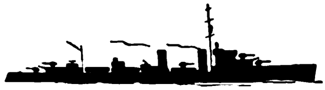


GREAT BRITAIN. Destroyers. "Greyhound," "Hero" and "Intrepid" classes.
"Greyhound" has davit fitted at stern.

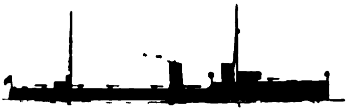


PORTUGAL. Destroyers. Vouga, Lima, Dao, Tejo, Douro.

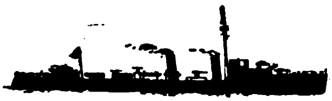
COLOMBIA. Destroyers. Antioquia, Caldas.



ARGENTINA. Flotilla Leaders. Mendoza, La Rioja, Tucuman.



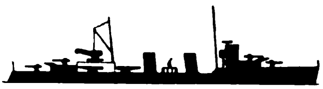
ITALY. Flotilla Leaders (Scouts). Carlo Mirabello, Augusto Riboty.



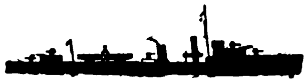
GREAT BRITAIN. Flotilla Leaders. Broke, Keppel, Wallace, Douglas, Campbell, Mackay, Malcolm, Montrose.

ROYAL AUSTRALIAN NAVY. Flotilla Leader. Stuart.

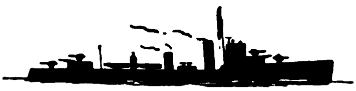
SPAIN. Flotilla Leaders. Almirante Valdes, etc., generally similar.



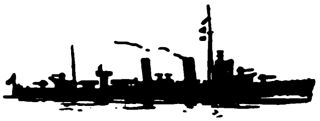
NETHERLANDS. Destroyers. Van Ghent, Evertsen, Piet Hein, Kortenaer, Banckert, Van Nes, Witte de With.



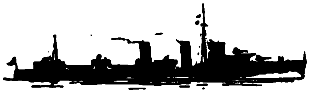
GREAT BRITAIN. Destroyers. Vanessa, Vanity, Vanoc, Vanquisher, Vega, Velox, Vendetta, Verdun, Versatile, Vesper, Vidette, Vimiera, Violent, Vivacious, Vivien, Vimy (*late* Vancouver), Vortigern, Valorous, Vampire, Viceroy, Viscount, Voyager, Walker, Walpole, Walrus, Warwick, Watchman, Waterhen, Westcott, Westminster, Winchelsea, Winchester, Wolfhound, Wolsey, Woolston, Wrestler, Wryneck, Vansittart, Venomous, Verity, Volunteer, Wanderer, Windsor, Veteran.



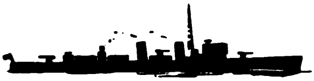
GREAT BRITAIN. Destroyers. Whitehall, Whitshed, Wildswan, Witherington, Wivern, Wolverine, Worcester, Wishart, Witch.



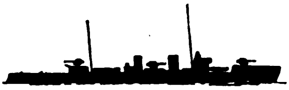
GREAT BRITAIN. Destroyers. Ambuscade, Amazon.



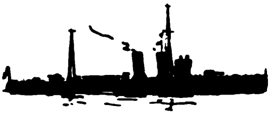
CHILE. Destroyers. Serrano, Orella, Riquelme, Hyatt, Videla, Aldea.



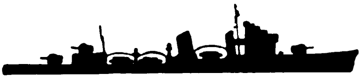
SWEDEN. Destroyers. Klas Horn, Klas Uggla, Ehrensköld, Nordenskjold.
Davit fitted at stern.



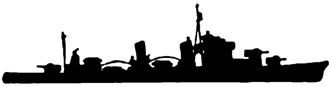
JAPAN. 2nd Class Destroyers. "Wakatake" class (7 ships), and "Kaya" class (19 ships).



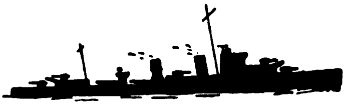
ITALY. Destroyers. Q. Sella, F. Crispi.
Bridgework extended. Platform fitted round mainmast.



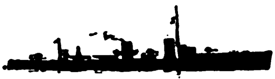
JAPAN. Destroyers. "Hibiki" class.



JAPAN. Destroyers. "Ariake" class (6 ships).

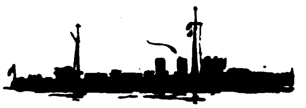


GREAT BRITAIN. Flotilla Leader. Faulknor. Destroyers. "Eclipse" and "Fearless" classes similar but gun between funnels omitted.

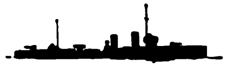


GREAT BRITAIN. Destroyers. Admiralty "S" class.

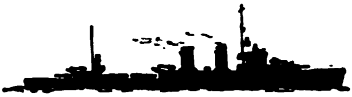
ITALY. Destroyers. Palestro, San Solferino, Martino, Confienza.
Bridge and foremost funnel heightened.



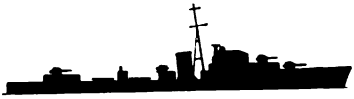
ITALY. Destroyers. Turbine, Nembo Euro, Borea, Ostro, Aquilone, N. Sauro, D. Manin, C. Battisti.
Bridge and foremost funnel heightened.



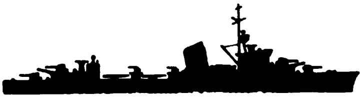
DENMARK. Torpedo Boats (1st Class). Glenten Hogen, Ornen, Laxen, Dragen, Hvalen.



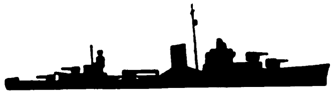
UNITED STATES. Destroyers. "Farragut" class.



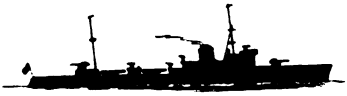
GREAT BRITAIN. Destroyers. "Javelin" and "Kelly" classes.



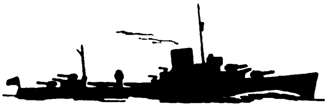
POLAND. Destroyer. Blyskawica.



UNITED STATES. Destroyers. "Maury" class.



ITALY. Destroyers. Dardo, Freccia, Strale, Saetta, Folgore, Lampo, Baleno, Fulmine.
Bridgework extended. Control platform fitted between torpedo tubes.



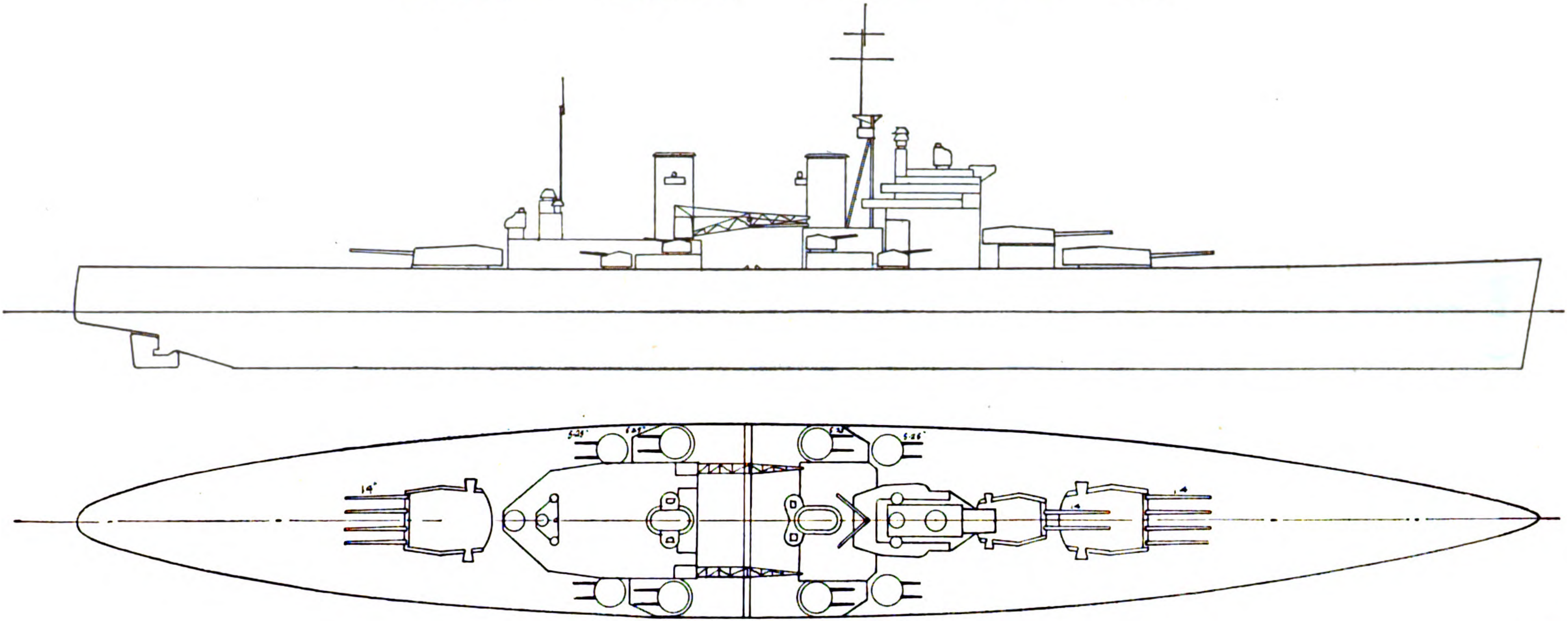
GREECE. Destroyers. Hydra, Spetzai, Psara, and Coundouriotis.

PLANS OF
BRITISH AND FOREIGN WARSHIPS

GREAT BRITAIN.

BATTLESHIPS.

King George V. Prince of Wales. Duke of York. Jellicoe. Beatty.



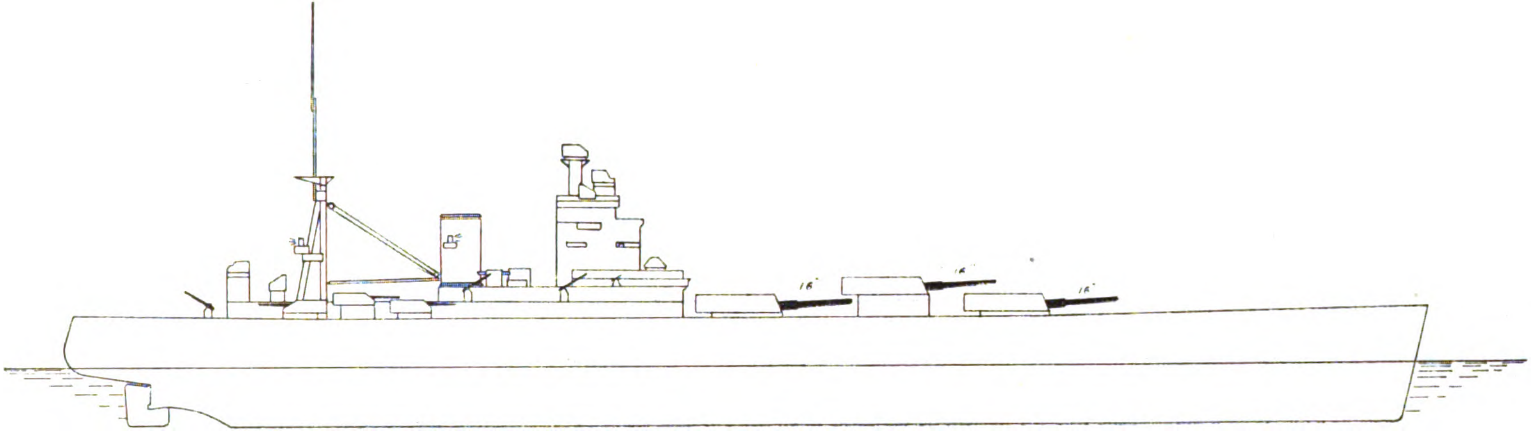
35,000 tons.

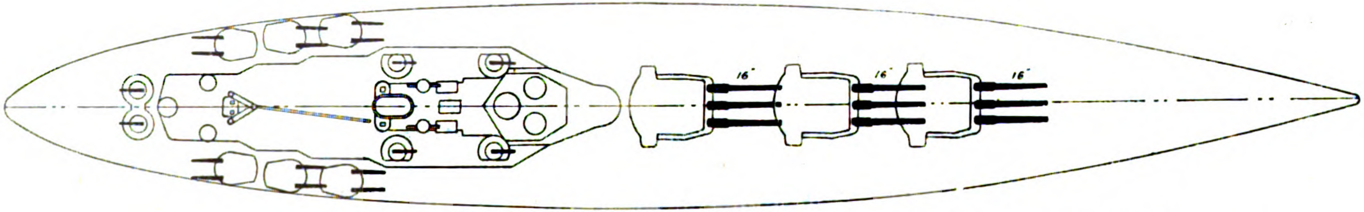
Armament, 10—14-in. ; 16—5·25-in.

GREAT BRITAIN.

BATTLESHIPS.

Nelson. **Rodney.**





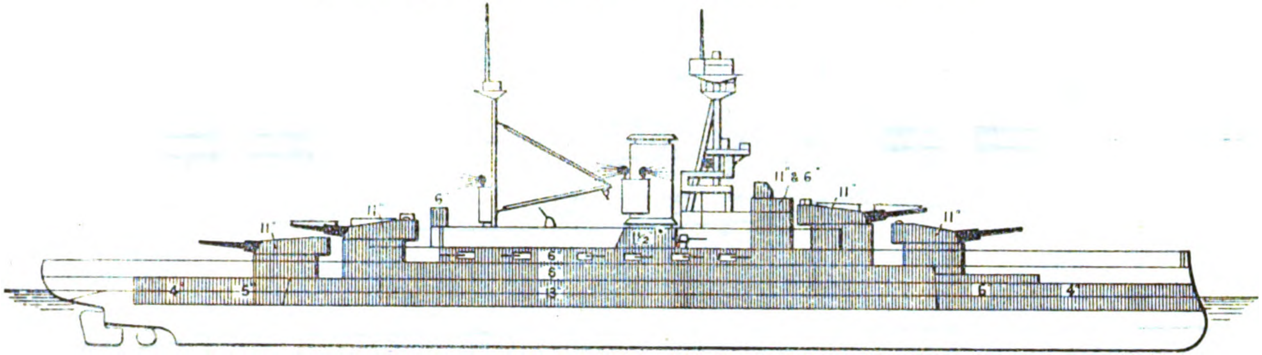
Length (extreme), 710 ft.; Rodney, 33,900 tons; Nelson, 33,500 tons; Speed, 23 knots; Completed, 1927.
Armament, 9—16-in.; 12—6-in.; 6—4·7-in. A.A.; 4—3-pr.; 2—2-pr. Pom Poms (3 in Rodney); 11 L; 5 M.; 2—24-in. submerged torpedo tubes.

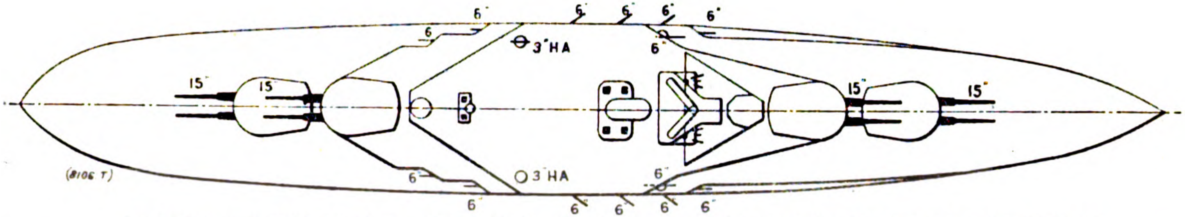
NOTE.—A 14-in. waterline armour belt extends from approximately the foremost 16-in. turret to approximately the aftermost 6-in. turret. The turret armour varies from 16-in. to 9-in.
Correction to plan.—Mast structure increased. Nelson has a crane amidships. Rodney has a catapult on "C" turret.

GREAT BRITAIN.

BATTLESHIPS.

Royal Sovereign. Revenge. Resolution. Ramillies.





Length (extreme), 620 ft. 6 ins.* ; Length B.P., 580 ft. ; 29,150 tons ; Speed, 23 knots (without bulges) ; Completed, 1916–17.
Armament, 8—15-in. ; 12—6-in. ; 8—4-in. A.A. ; 4—3-pr. ; 5 M. ; 10 L. ; 2—21-in. submerged torpedo tubes in Revenge. **Revenge and Ramillies have 4—4-in. H.A.** Revenge has 2—2-pr. Pom Poms.
Corrections to plan.—Searchlights on mainmast and the superstructure 6-in. guns now removed. The 4-in. A.A. guns are **fitted on the superstructure** instead of the 3-in. H.A. shown. Fore topmast removed. Main topgallant mast fitted.

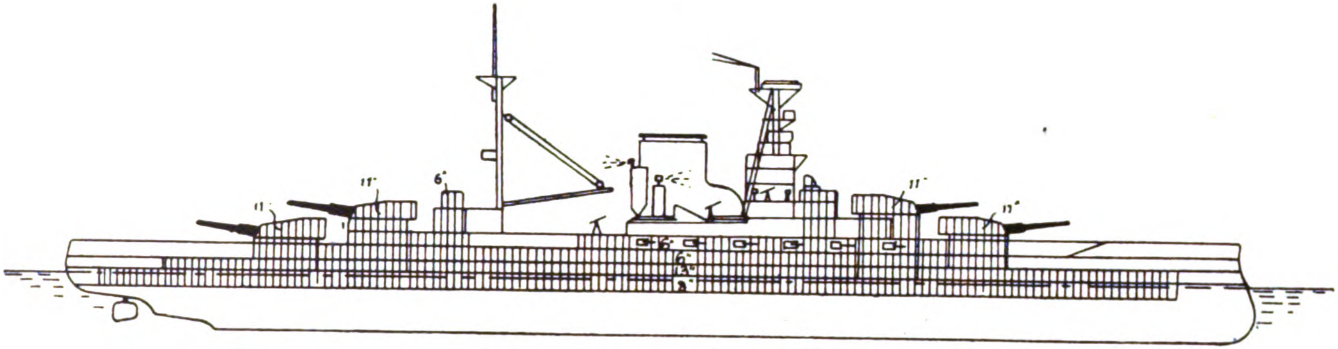
* Revenge, 625 ft. 9 in.

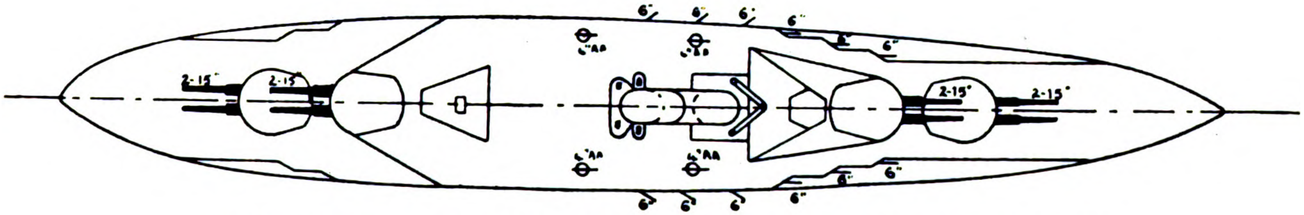
Resolution and Ramillies have tripod mainmasts, a catapult on "X" Turret and a crane abreast the mainmast, and **carry 1 aircraft each.**

GREAT BRITAIN

BATTLESHIPS.

Barham. **Malaya.**





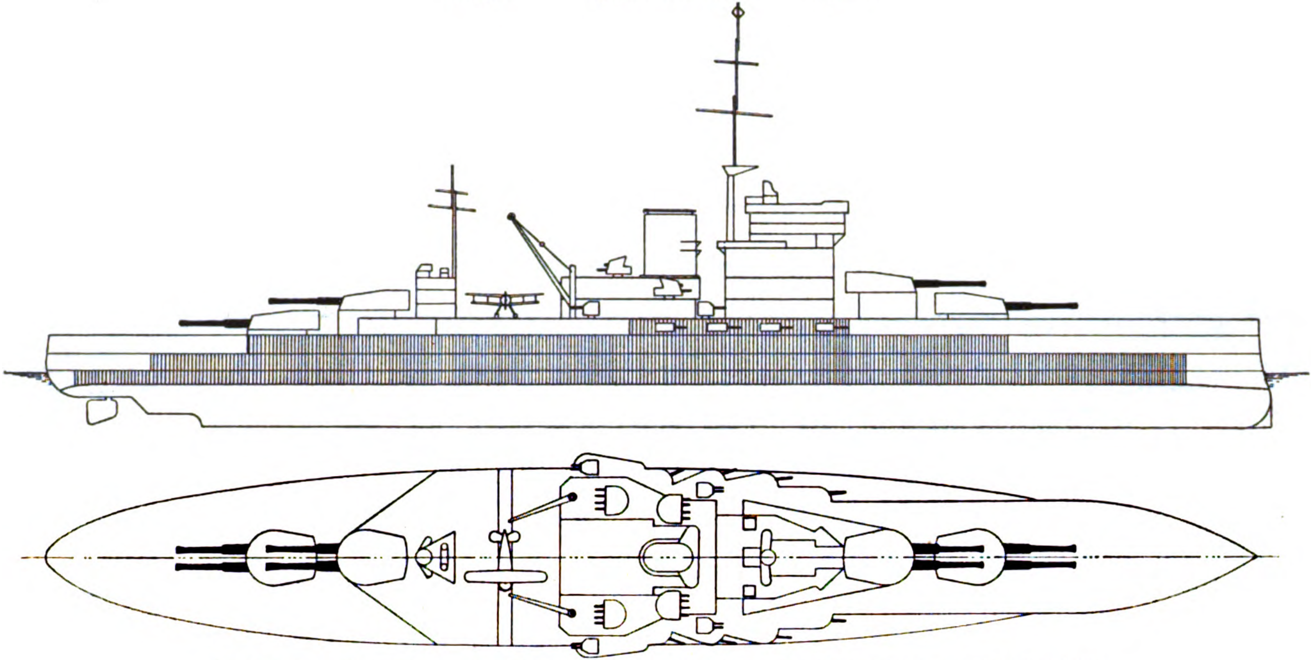
Length B.P., 600 ft.; (extreme 639¾—644½ ft.); 31,100 tons; Speed, 25 knots (without bulges); Completed, 1915-1916.
Armament, 8—15-in.; 12—6-in.; 8—4-in. A.A.; 4—3-pr.; 5 M.; 10 L.

NOTES.—Barham has tripod mainmast, main topgallant mast, catapult on "X" turret and a crane abreast mainmast.
Malaya has main topgallant mast, catapult before mainmast, a hangar and crane each side abreast funnel. Derrick removed.

GREAT BRITAIN.

BATTLESHIPS.

Warspite. **Queen Elizabeth.** **Valiant.**

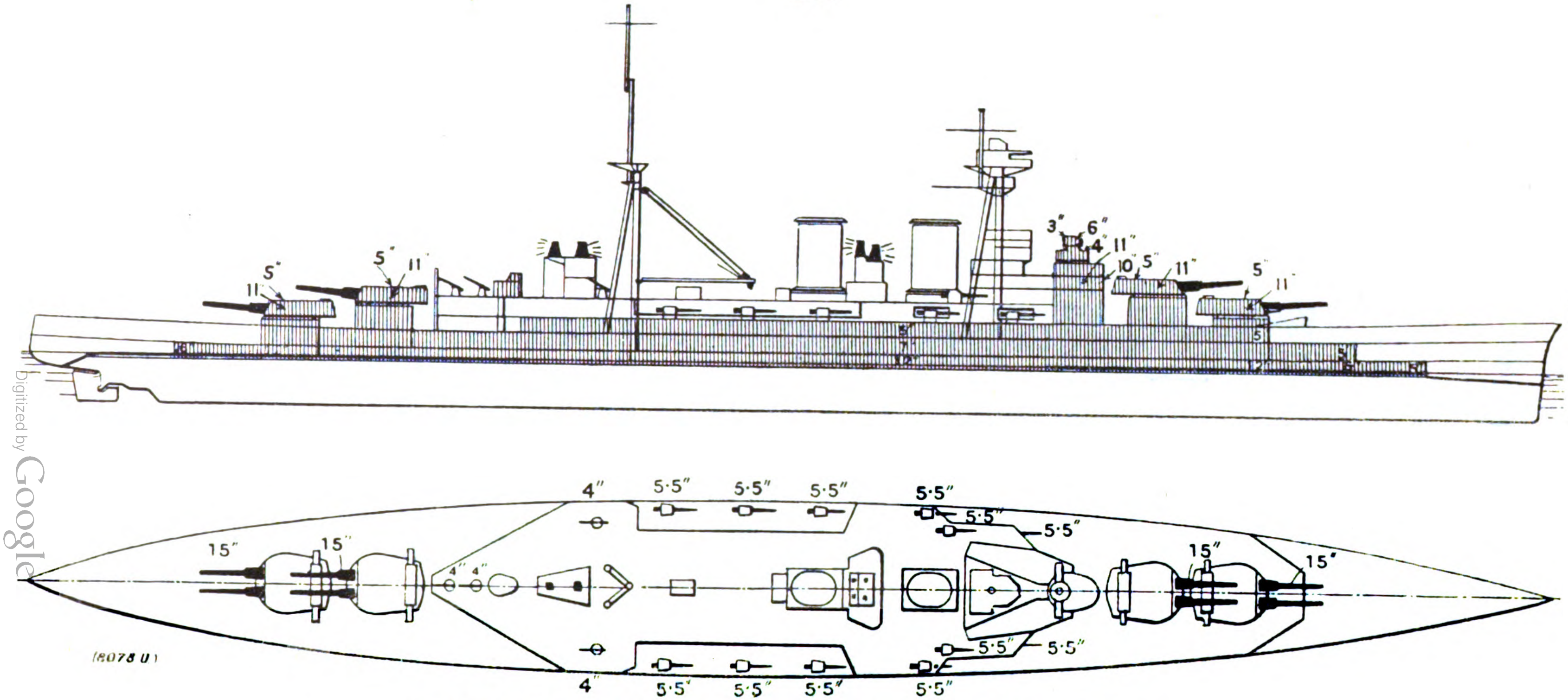


Length B.P., 600 ft.; (extreme 639 ft. 8 ins.—646 ft.); 31,100 tons; Speed, 25 knots; Completed, 1915–1916.
Armament, 8—15-in.; 12—6-in.; 8—4-in. A.A.; 4—3-pdr. Pom Poms; 1 catapult; 1 aircraft. Valiant has 4—4-in. A.A.
NOTES.—Queen Elizabeth and Valiant have tripod foremasts.

GREAT BRITAIN

BATTLE-CRUISER.

Hood.



Length (extreme), 860 ft. 10 ins.; Length B.P., 810 ft.; 42,100 tons; Speed, 31* knots; Completed, 1920.

Armament, 8—15-in.; 10—5·5-in.; 8—4-in A.A.; 4—3-pdr.; 5 M.; 10 L.; 2—2-pdr. Pom Poms.; 4 A.W. and 2 sub. 21-in. torpedo tubes.

* Trials at 44,600 tons, 31·89 knots with 151,000 S.H.P.

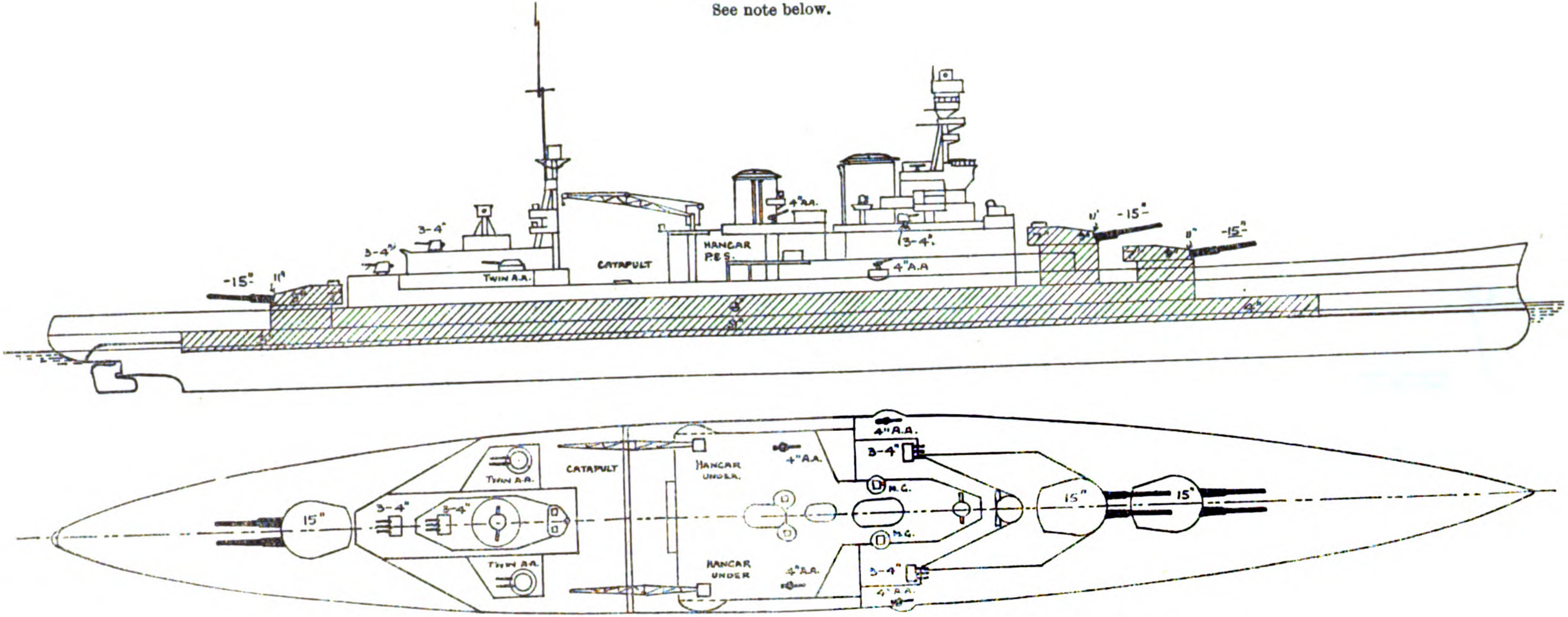
Correction to plan.—Fore topgallant mast added and bridgework modified.

GREAT BRITAIN.

BATTLE-CRUISERS.

Repulse. **Renown.**

(After reconstruction.)
See note below.

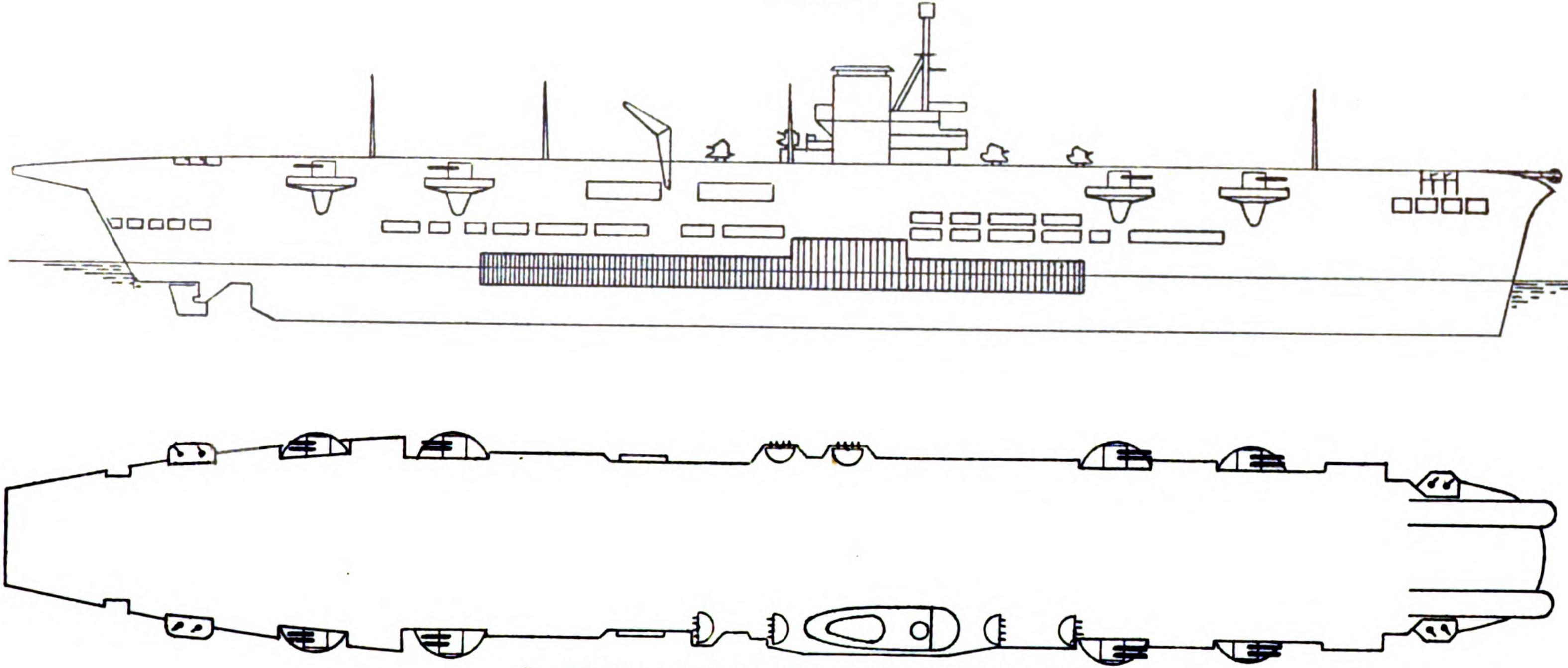


Length (extreme), 794 ft. 2 ins.; 32,000 tons; Speed, 31½ **knots** (without bulges); Completed, 1916.
Repulse was reconstructed 1936. Renown 1939.
Armament, 6—15-in.; 12—4-in.; 4—4-in. A.A.; 2 twin A.A.; 2 multi-machine guns; 1 catapult; 4 aircraft. 8 torpedo tubes in **Repulse.**

GREAT BRITAIN.

AIRCRAFT CARRIER.

Ark Royal.

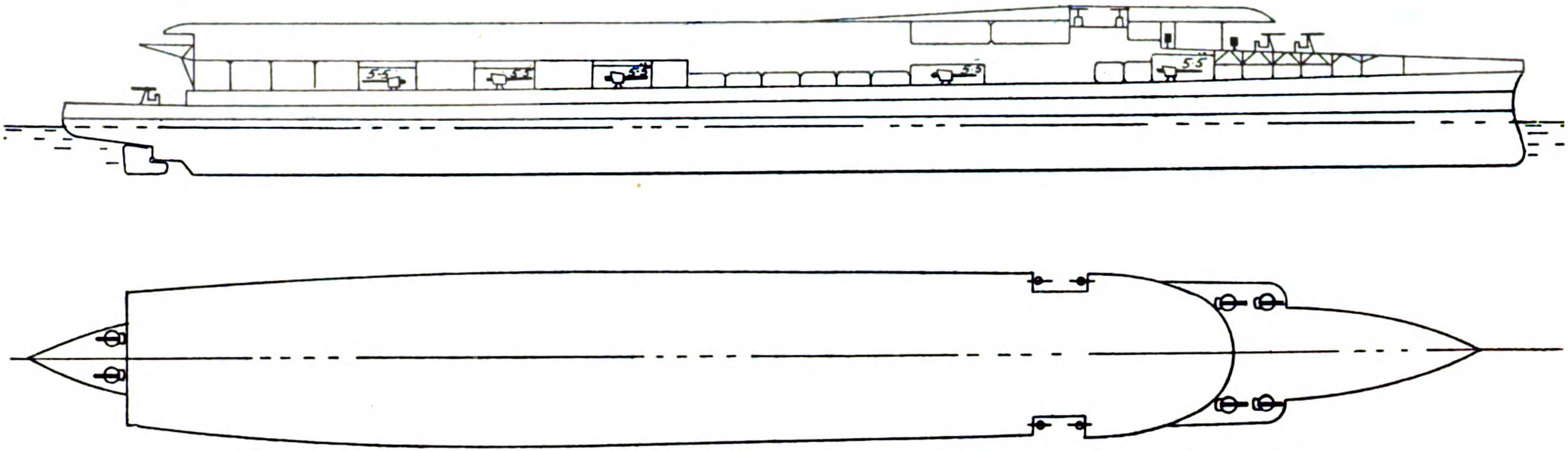


Length (extreme), 800 ft.; 22,000 tons; 30¾ knots; Completed, 1938.
Armament, 16—4·5-in. guns, 4—3 pr.; 70 aircraft.

GREAT BRITAIN

AIRCRAFT CARRIER.

Furious.

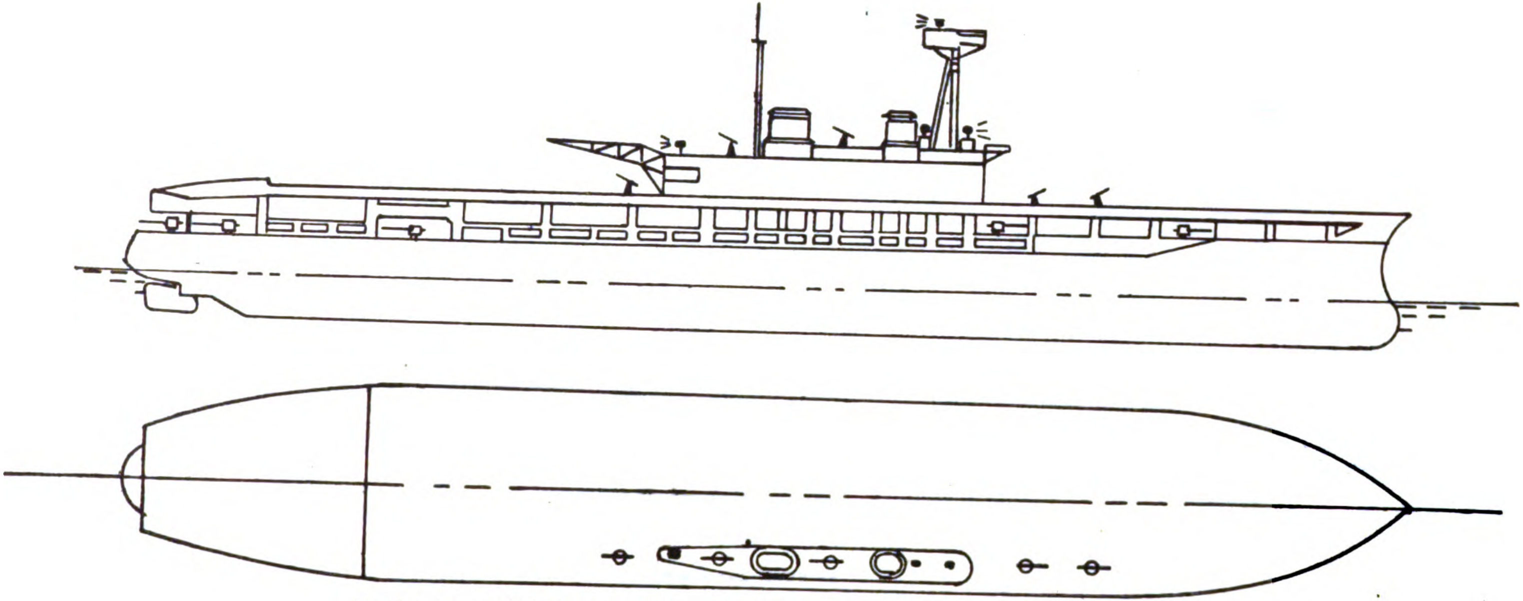


Length (extreme), 786 ft. 6 ins.; 22,450 tons; Speed, 31 knots; Completed as a cruiser, 1917; Conversion to aircraft carrier completed, 1925.
Armament, 10—5·5-in.; 3—4-in. A.A.; 4—3-pr.; 4—2-pr.; 46 smaller; 33 aircraft.
Three wireless masts added each side of flight deck. Quarter deck has been raised one deck.
Top deck forward has been levelled off and closed in.

GREAT BRITAIN.

AIRCRAFT CARRIER.

Eagle.



Length (extreme), 667 ft. 6 ins.; 22,600 tons; Speed, 24 knots; Completed as an aircraft carrier, 1924.
Armament, 9—6-in.; 4—4-in. A.A.; 4—3-pr.; 32 smaller; 20 aircraft.

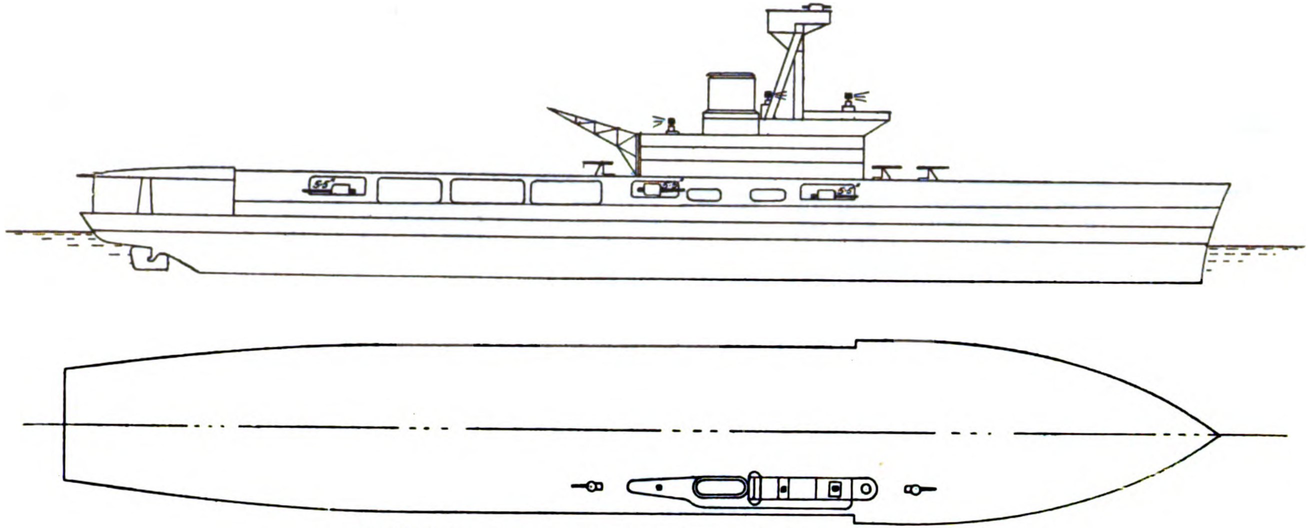
Fore topmast added and mast structure modified.

Signal mast added forward.

GREAT BRITAIN.

AIRCRAFT CARRIER.

Hermes.



Length (extreme), 600 ft.; 10,850 tons; Speed, 25 knots; Completed, 1924.
Armament, 6—5·5-in.; 3—4-in. A.A.; 4—3-pr.; 2—2-pr. Pom Poms; 4 M.; 16 L.; 15 aircraft.
Flight deck extended aft. Fore topmast and signal mast forward added.

GREAT BRITAIN.

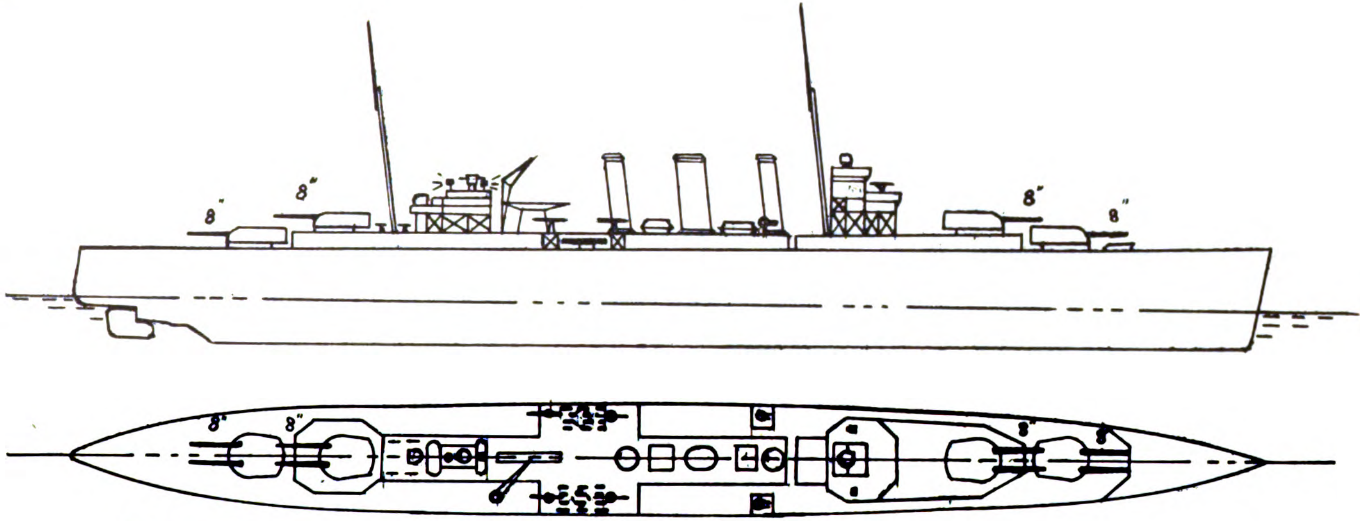
CRUISERS.

"London" *Class.*

London. Sussex. Shropshire. Devonshire

"Norfolk" *Class.*

Dorsetshire.* Norfolk.*



Displacements, 9,730—9,900 tons; Length (extreme), 630 ft.; Norfolk and Dorsetshire, 633 ft. Armament, 8—8-in.; 8—4-in. A.A.; 4—3-pr.; 4—2-pr. Pom Poms; 4 M.; 8 L.; 8—21-in. torpedo tubes; 1 aircraft; 1 catapult.

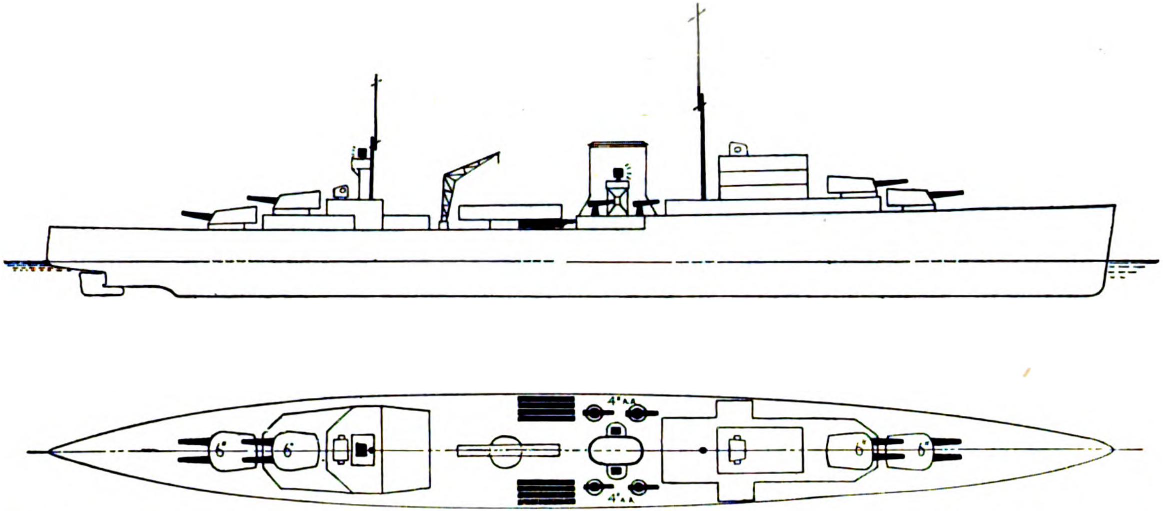
* In Dorsetshire and Norfolk the seaplane crane and the 4—4-in. guns are slightly forward of the positions shown. Fore topgallant mast added.

GREAT BRITAIN.

CRUISERS.

"*Leander*" *Class.*

Leander. **Achilles.** **Neptune.** **Orion.** **Ajax.**



Displacement, 6,985–7,270 tons; Length (extreme), 554 ft. 6 ins.; Speed, 32½ knots. Armament, 8—6-in., 8—4-in. A.A., 4—3-pr. 8 torpedo tubes, 1 catapult; 2 aircraft. Achilles has 4—4-in. AA.

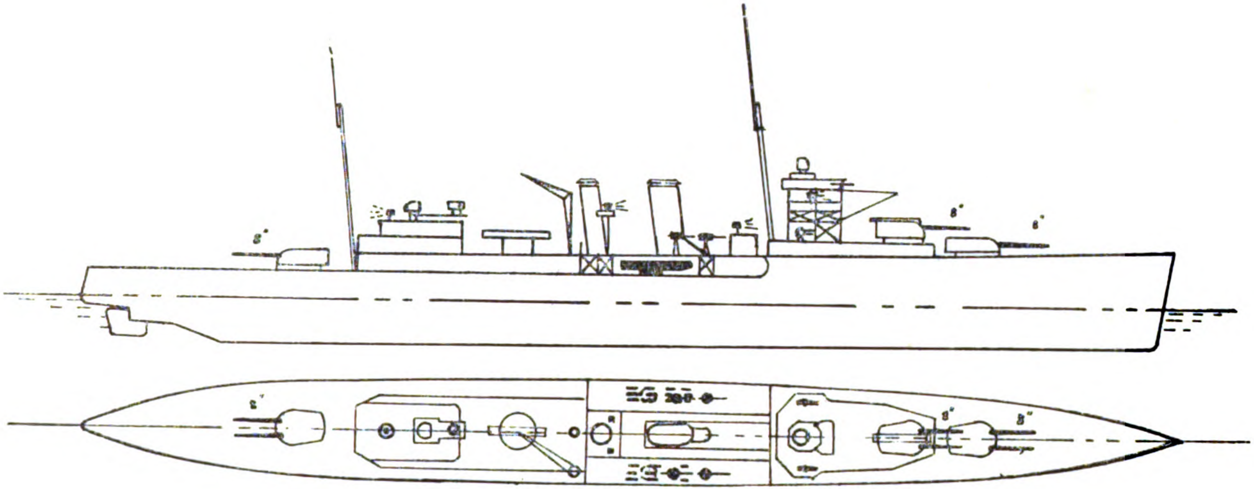
Leander and Achilles are attached to New Zealand division and have 1 aircraft.

GREAT. BRITAIN.

CRUISERS.

"York" Class.

York. **Exeter.***



Displacement: York, 8,250 tons; Exeter, 8,390 tons; Length (extreme), 575 ft.; Speed: York, 32¼ knots; Exeter, 32 knots. Armament, 6—8-in.; 4—4-in. A.A., 4—3-pr.; 2—2-pr.; 4 M.; 8 L.; 6—21-in. torpedo tubes; 2 catapults and 2 aircraft in Exeter; 1 catapult and 1 aircraft in York.

* In Exeter funnels and masts are vertical, and the mainmast is taken up through the superstructure.

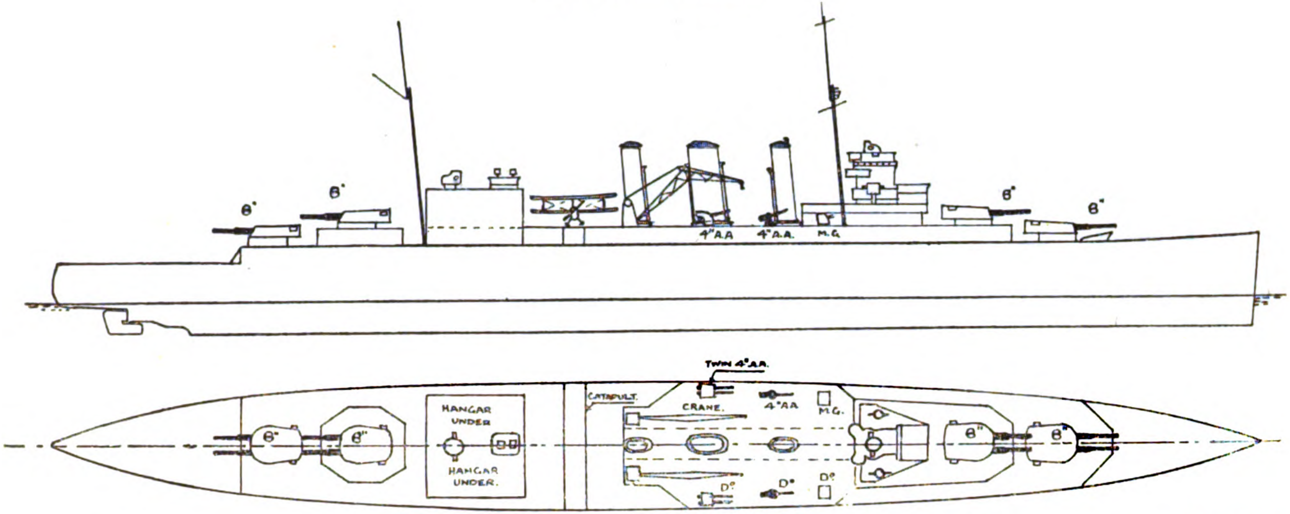
GREAT BRITAIN.

CRUISERS.

"Kent" Class.

Berwick. Kent. Cumberland. Suffolk. Cornwall Australia.* Canberra.*

(As reconstructed 1936–1938.)



Length (extreme), 630 ft.; 10,000 tons; Speed 31½ knots; Completed 1928. Armament, 8—8-in.; 8—4-in. A.A.; 2 multi-machine **guns; 1 catapult**; 3 aircraft. Kent, Australia and Canberra have 1 aircraft; Cumberland and Suffolk have 6—4-in. A.A.; Australia and Canberra h**ave 4—4-in. A.A.**

NOTES.—Berwick, Kent, Cornwall, Australia, and Canberra are flush-decked.

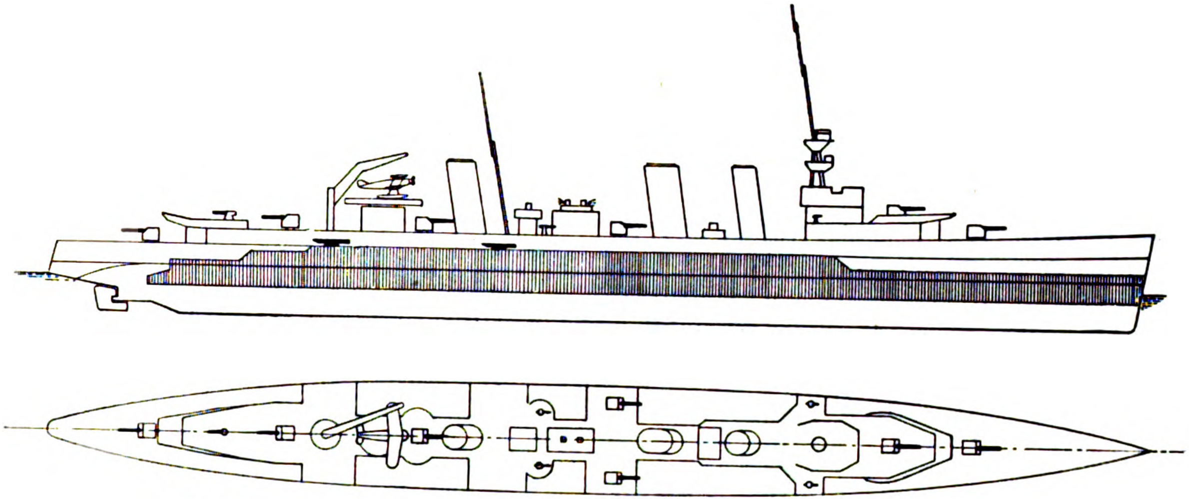
Royal Australian Navy. Australia and Canberra are not provided with hangars.

GREAT BRITAIN.

CRUISERS.

' *E" Class.*

Emerald. **Enterprise.***



Length (extreme), 570 ft. ; Length B.P., 535 ft. ; Emerald, 7,550 tons ; Enterprise, 7,580 tons ; Speed, 33 knots. Armament, 7—6-in. ; 3—4-in. A.A. ; 4—3-pr. ; 2—2-pr. Pom Poms ; 2 M. ; 8 L. ; 16—21-in. torpedo tubes ; 1 catapult ; 1 aircraft.

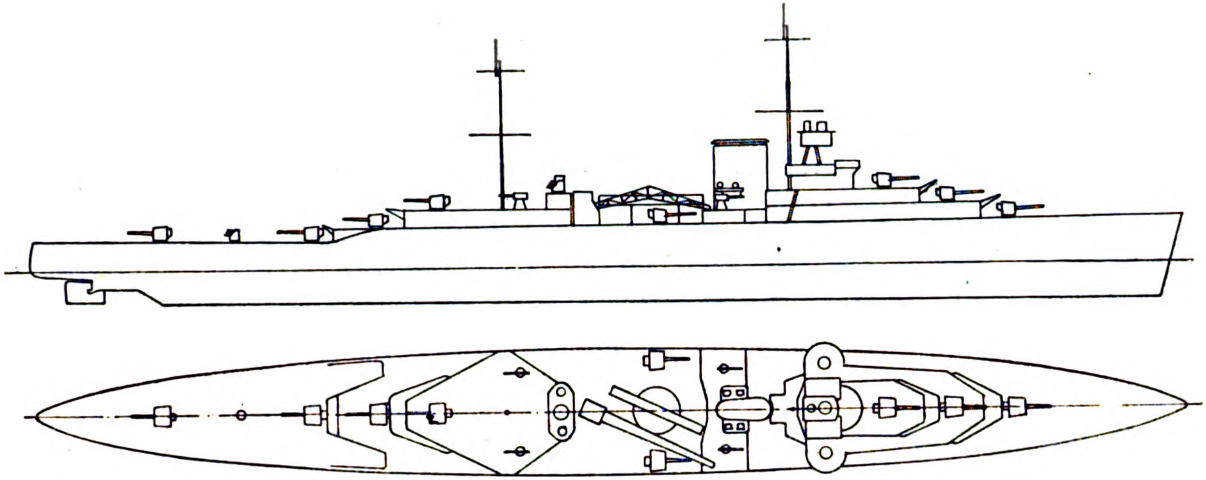
*** In Enterprise the two forward 6-in. guns are mounted in a twin mounting on forecastle deck.**

GREAT BRITAIN.

CRUISERS.

"Hawkins" Class.

Hawkins. **Frobisher]**



Length (extreme), 605 ft.; Length B.P., 565 ft.; 9,550—9,800 tons; Speed: Hawkins 29½ knots; Frobisher 30½ knots.

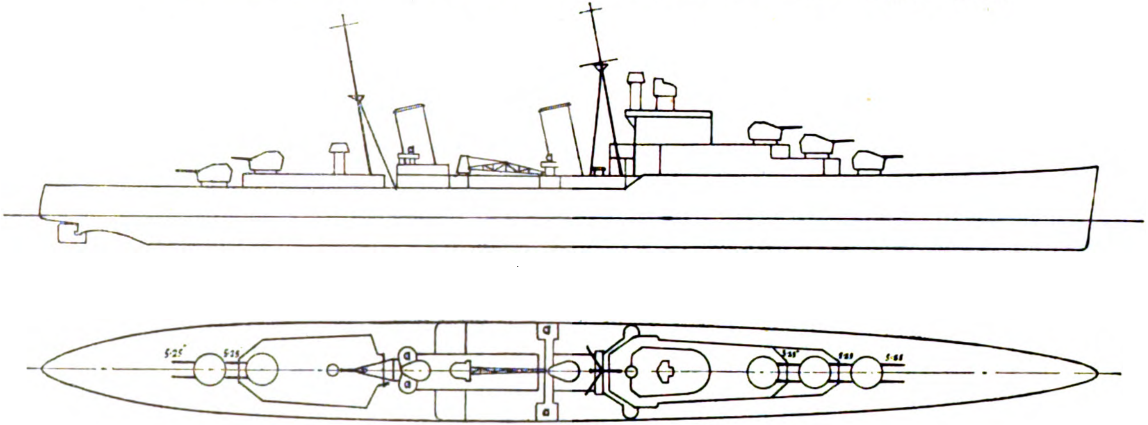
Armament: 9—6-in.; 4—4-in. A.A.; 4—3-pr.; 2—2-pr.; 2 M.; 8 L.; 4 torpedo tubes.

GREAT BRITAIN

CRUISERS.

"*Dido*" *Class.*

Bonaventure. Charybdis. Cleopatra. Dido. Euryalus. Hermione. Scylla. Sirius.



5,450 tons.

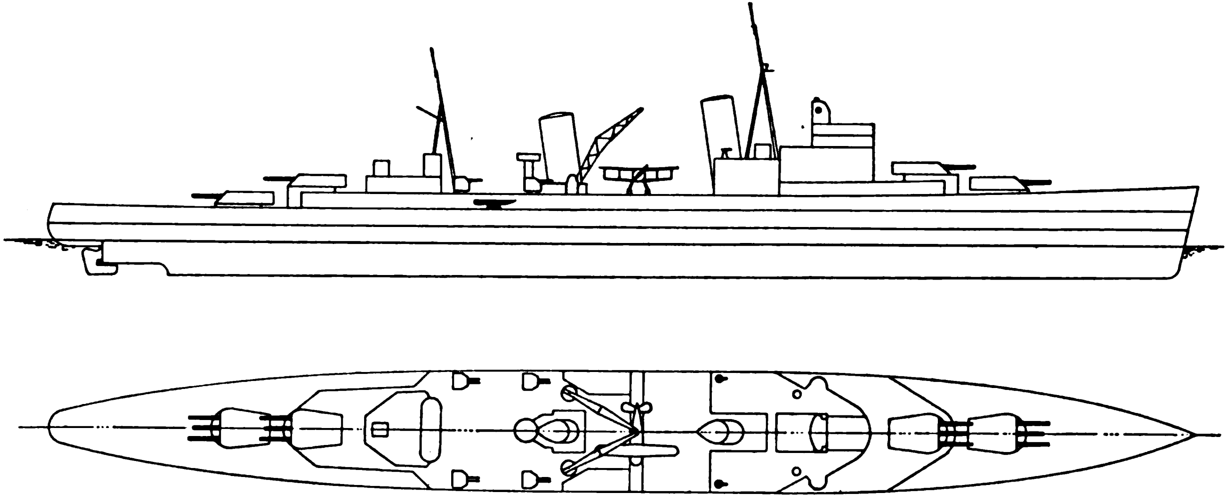
Armament, 10—5·25-in.

GREAT BRITAIN.

CRUISERS.

"*Southampton*" *Class.*

Newcastle Sheffield, Birmingham, Glasgow, Gloucester, Liverpool, Manchester.



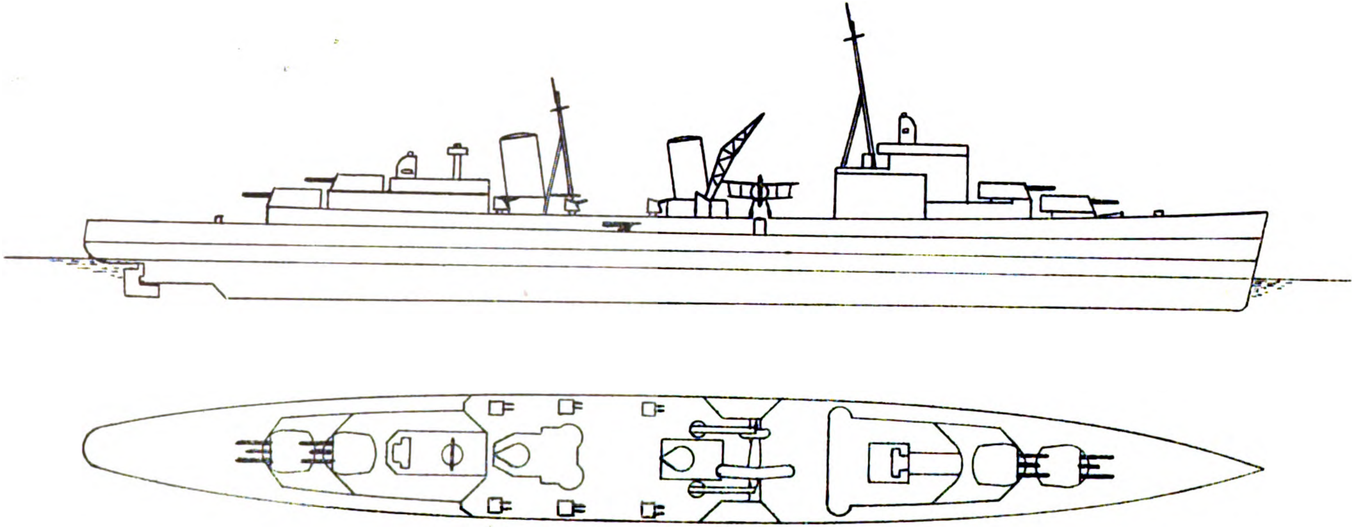
**Length (extreme), 591 ft. 6 ins.; 9,100 tons (Liverpool, Manchester and Gloucester 9,400 tons); Speed, 32 knots; Completed, 1937–38.
Armament, 12—6-in.; 8—4-in. A.A.; 2—2-pr.; 6—21-in. torpedo tubes; 1 catapult; 3 aircraft.**

GREAT BRITAIN.

CRUISERS.

Improved "Southampton" Class.

Belfast. **Edinburgh**



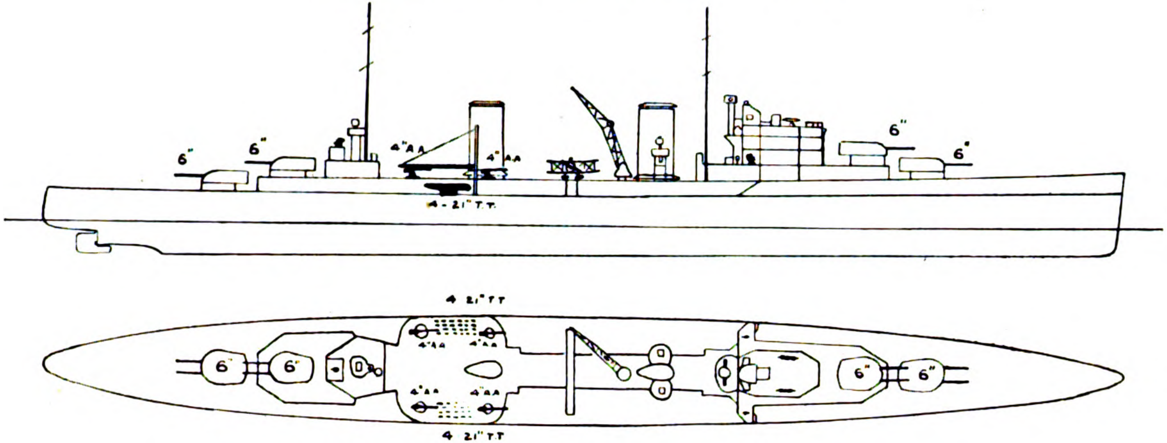
Length (extreme), 613 ft. 6 ins.; 10,000 tons; Speed, 32¼ knots.
Armament 12—6-in.; 12—4-in. A.A.; 20 smaller guns; 6 torpedo tubes.

COMMONWEALTH OF AUSTRALIA.

CRUISERS.

Modified "Leander" Class.

Perth (*ex* **Amphion**). **Hobart** (*ex* **Apollo**). **Sydney.**



Displacement, 6,850–7,100 tons ; Length (extreme), 560 ft. ; Speed, 32½ knots.
Armament, 8—6-in ; 8—4-in. A.A. : 18 smaller guns ; 4 quadruple 21-in. torpedo tubes ; 1 catapult.

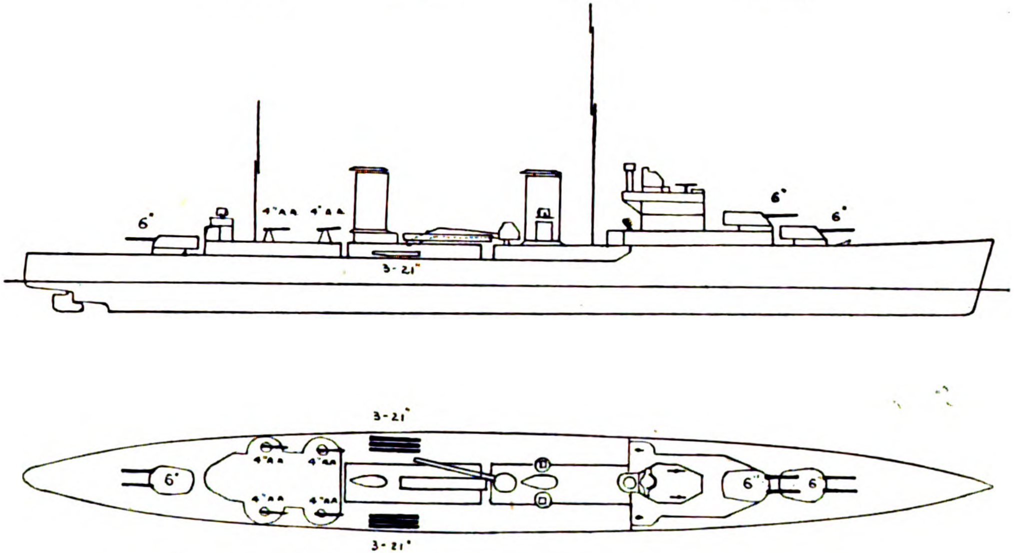
Perth and Hobart carry 2 aircraft and Sydney 1 aircraft. Sydney completed, 1935 ; Perth and Hobart completed in 1936.

GREAT BRITAIN.

CRUISERS

"*Arethusa*" Class.

Arethusa. **Galatea.** **Penelope.** **Aurora.**



Displacement, 5,220–5,270 tons ; Length (extreme), 506 ft. ; Speed, 32¼ knots; Completed 1935–37.
Armament, 6—6-in. ; 4—4-in. A.A. ; 2—3-pr. ; 18 smaller ; 2 triple 21-in. torpedo tubes ; 1 catapult, 1 aircraft.

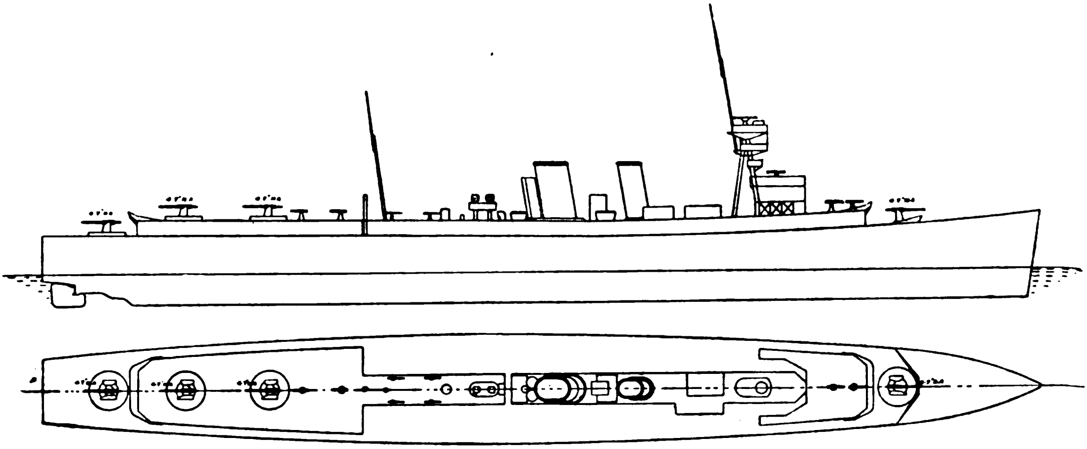
Aurora and Penelope have 4 twin 4-in. A.A. mountings instead of singles.

Derrick fitted on aft side of after funnel.

GREAT BRITAIN.

CRUISER MINELAYER.

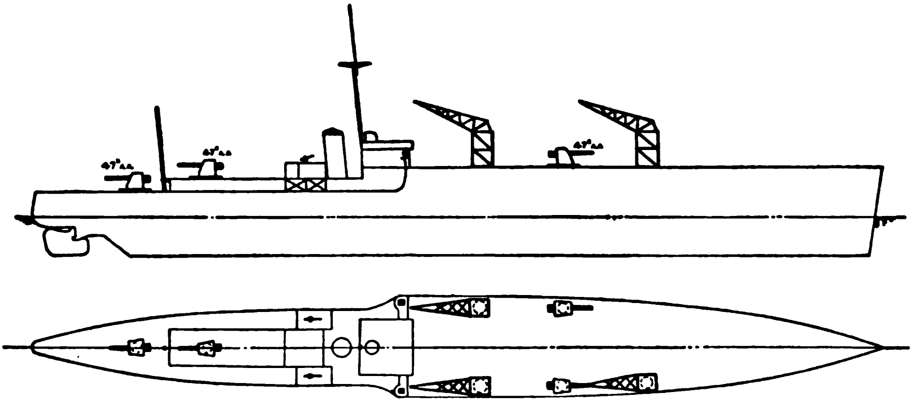
Adventure.



Length (extreme), 539 ft.; Length B.P., 500 ft.; 6,740 tons; Speed, 28 knots.
Armament, 4—4·7-in. A.A.; 4—3-pr.; 4—2-pr.; 2 M.; 8 L.; 310 mines.
Stern has been lengthened and rounded in plan. Derricks added abreast masts.

SEAPLANE CARRIER.

Albatross.



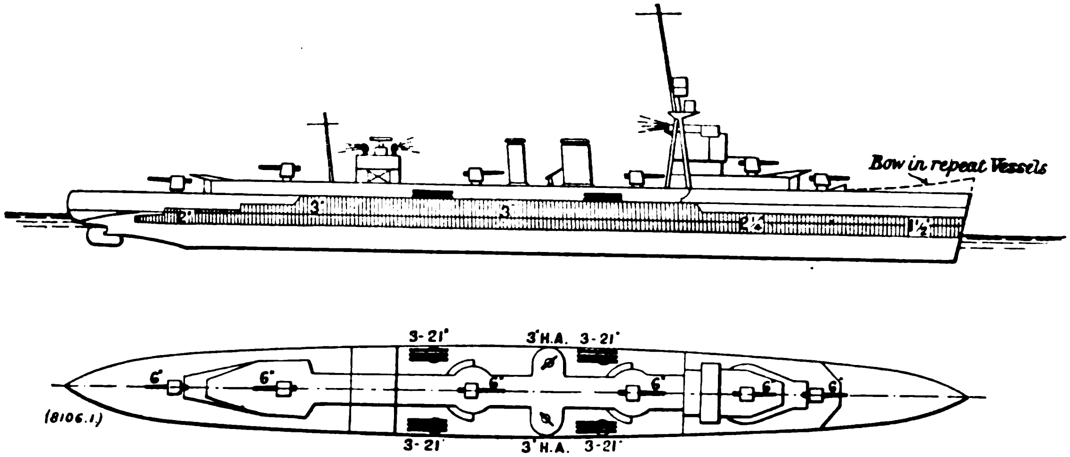
Length, 443¾ ft.; 4,800 tons; Speed, 21 knots; Completed, 1929.
Armament, 4—4·7-in. A.A.; 4—2-pr. Pom Poms; 4—3-pr.; 4 M.; 20 L.; 9 seaplanes.

GREAT BRITAIN.

CRUISERS.

"D" Class.

Despatch. ***Diomede.** **Danae.** ***Dunedin.** **Dauntless.** ***Durban.** **Dragon.** ***Delhi.**



Length, 472½ ft.; 4,850 tons; Speed, 29 knots;
Armament, 6—6-in.; 3—4-in. A.A.; 4—3-pr., 2—2-pr.; 2 M.; 8 L.; 12—21-in. torpedo tubes.

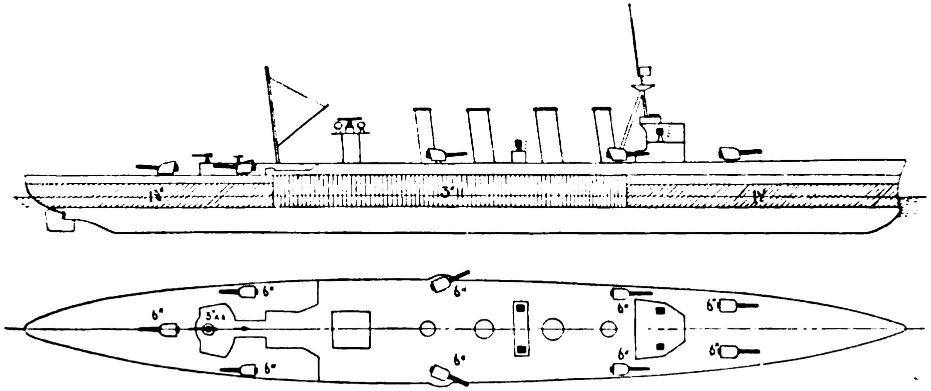
Main topmast fitted. Foremost gun in Diomede housed in gunhouse.

* Repeat vessels.

COMMONWEALTH OF AUSTRALIA.

CRUISER.

Adelaide.



Length, 462¾ ft.; 5,100 tons; Speed, 25½ knots.
Armament, 9—6-in.; 4—3-pr.; 1—3-in. A.A.; 8 L.; 2 submerged 21-in. torpedo tubes.

GREAT BRITAIN.

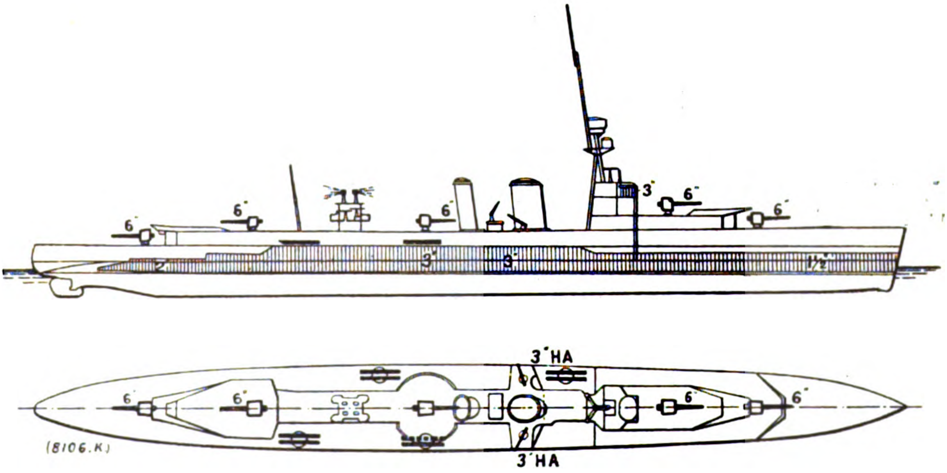
CRUISERS.

"Ceres" Class.

Ceres. **Curacoa.** **Cardiff.**

'Carlisle" Class.

Carlisle.



Length (extreme), 450 ft.–451 ft. 9 ins.; Length B.P., 425 ft.; 4,200–4,290 tons; Speed, 29 knots; Completed, 1917–22.

Armament, 5—6-in.; 2—3-in. A.A.; 4—3-pr.; 2—2-pr. Pom Poms; 4 above-water 21-in. D.R. torpedo tubes. Cardiff, Curacoa, and Ceres have 2—3-pr.

Carlisle has a trawler bow.

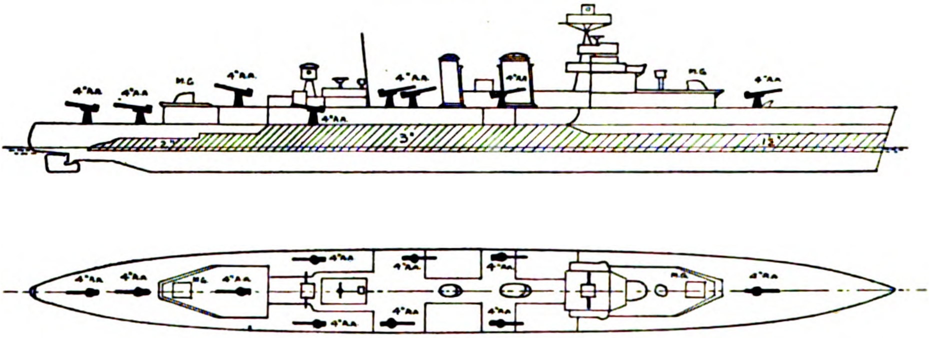
GREAT BRITAIN.

CRUISERS.

"*Ceres*" *Class.*

Coventry. **Calcutta.** **Cairo.**
Capetown and Colombo when completed

Anti-Aircraft gun ships.

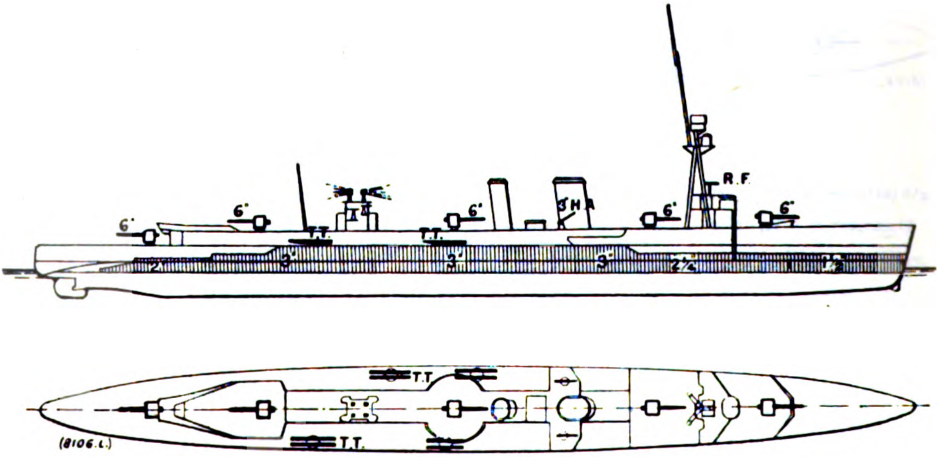


Length (extreme), 450 ft. ; 4,290 tons ; Speed, 29 knots ; Completed, 1917.
Armament, 10—4-in. A.A. ; 2—3-pr. ; 2 multi-machine guns ; 2 M.G. ; 8 L. ; 8—21-in. torpedo tubes.
Calcutta and Cairo have 8—4-in. A.A.

CRUISERS.

"*Caledon*" *Class.*

Caledon. **Caradoc.**

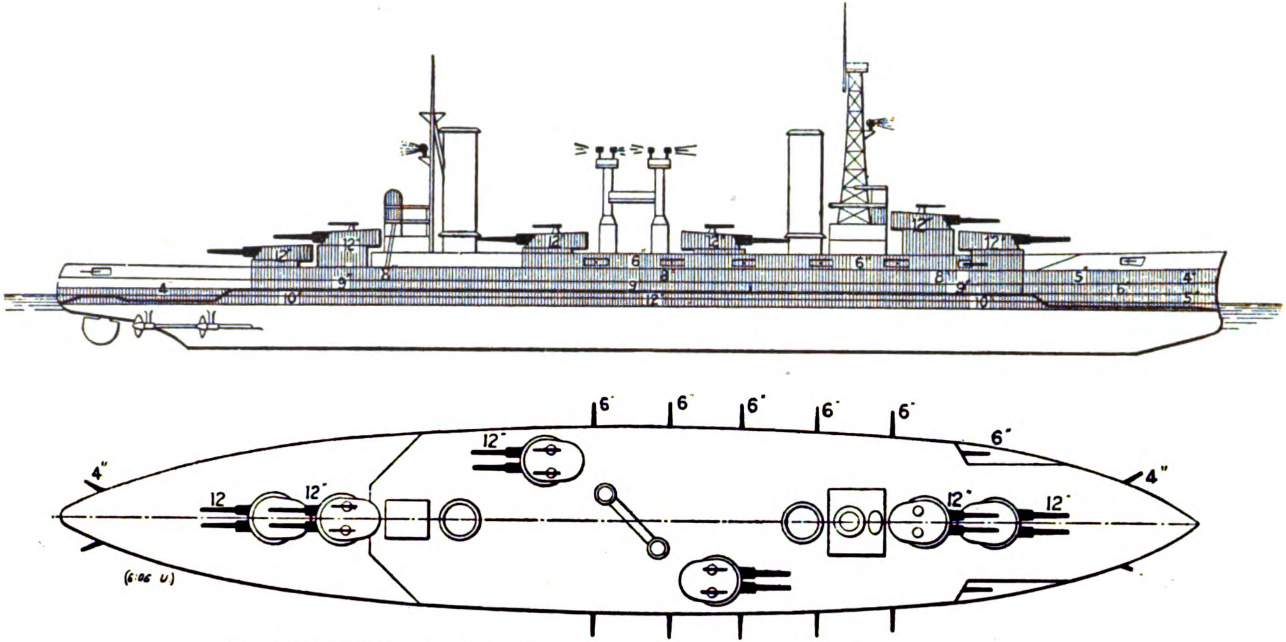


Length (extreme), 450 ft. ; Length B.P., 425 ft. ; 4,180 tons ; Speed, 29 knots ; Completed, 1917.
Armament, 5—6-in. ; 2—3-in. A.A. ; 4—3-pr. ; 2—2-pr. Pom Poms ; 2 M. ; 8 L. ; and 4 above-water 21-in. D.R. torpedo tubes.

ARGENTINA

BATTLESHIPS

Moreno. Rivadavia.



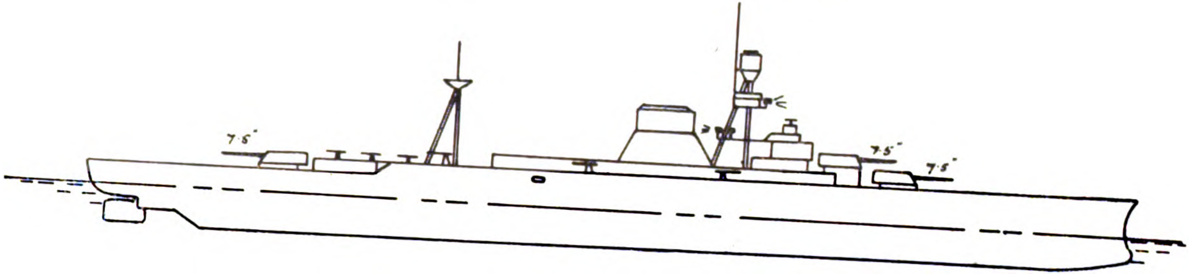
Length (extreme), 585 ft. ; Length on W.L., 575 ft. ; 27,940 tons ; Speed, 22½ knots ; Completed, 1914-15.
Armament, 12—12-in. ; 12—6-in. ; 4—3-in. A.A. ; 6 M. ; 4 L. ; 2 submerged 21-in. torpedo tubes.

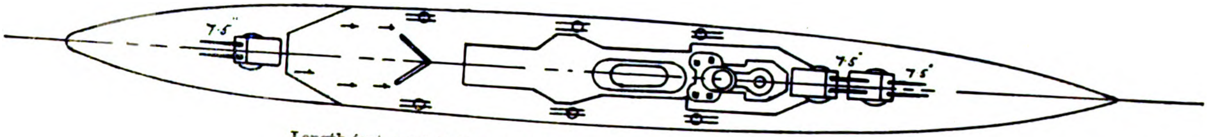
Guns on B and X turrets replaced by rangefinders.

ARGENTINA.

CRUISERS.

Almirante Brown. **Vinticinco de Mayo**





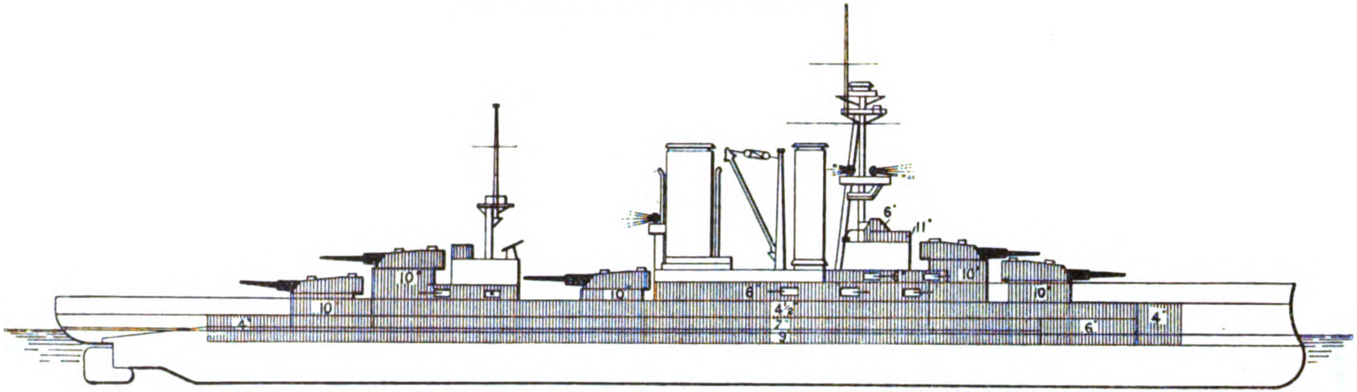
Length (extreme), 545¾ ft.; **6,495 tons; Speed, 32 knots. Completed, 1931.**
Armament, 6—7·5-in.; **12—4-in. A.A.; 6 Pom Poms; 6—21-in. torpedo tubes;**
1 catapult; 2 seaplanes.

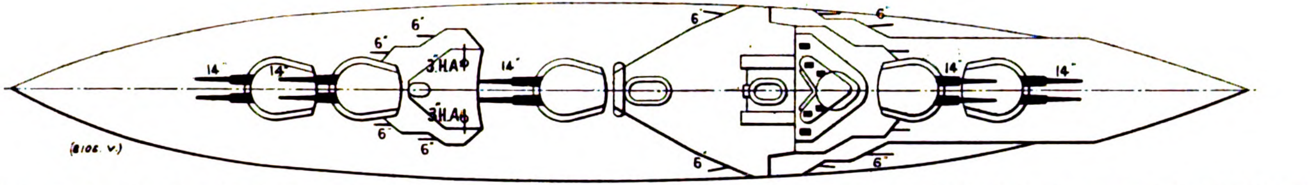
Corrections to plan.—Fore topmast shortened. **Main topmast lengthened. Derrick fitted on fore side of mainmast.**
Searchlight fitted on mainmast. **Superstructure built aft side of mainmast.**

CHILE.

BATTLESHIP.

Almirante Latorre (*formerly* H.M.S. Canada).





Length (extreme), 661 ft.; Length B.P., 625 ft.; Standard Displacement, 28,950 tons; Speed, 23 knots; Completed, 1915; Modernised at Devonport Dockyard, 1929–31.*
Armament, 10—14-in.; 14—6-in.; 4—3-pr.; 4 submerged 21-in. torpedo tubes; 1 catapult.

*** During modernisation main topmast has been raised and bridge platforms extended.**

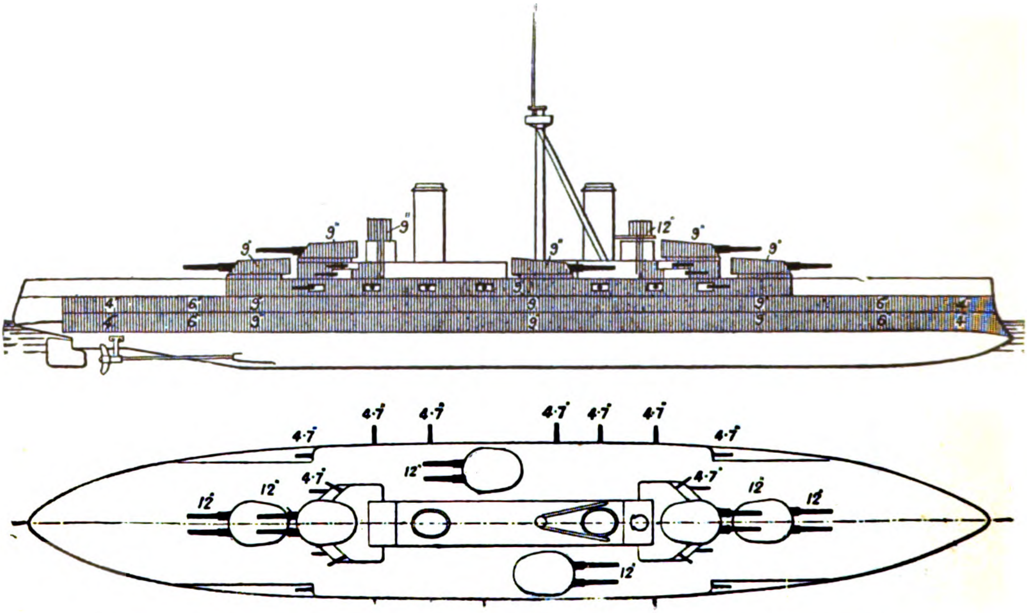
Four 4-in. A.A. have been added.

Catapult fitted on quarter deck.

BRAZIL.

BATTLESHIPS.

Minas Geraes. **São Paulo.**

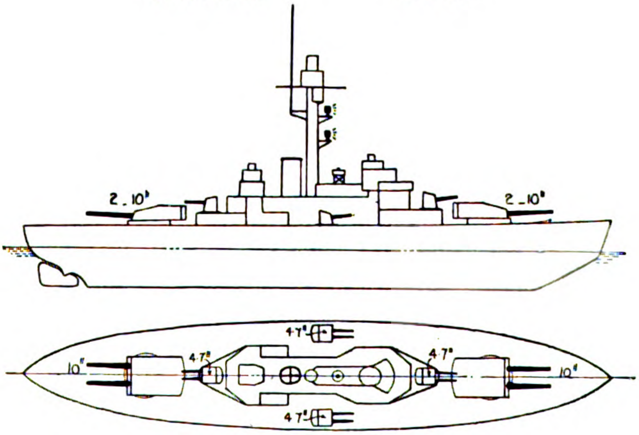


Length (extreme), 543 ft.; Length B.P., 500 ft.; 19,200 tons; Speed, 21 knots; Completed, 1909, 1910.
Armament, 14—12-in.; 14—4·7-in.; 2—3-pr.; 4—3-in. A.A.; 8 M. A.A.
Overhauled and refitted at Brooklyn Navy Yard, 1921–22, and A.A. guns installed.
Corrections to plan.—Ten main deck 4·7-in. guns removed in 1931.
Forward funnel removed, bridgework modified; 4·7-in. guns and 3-in. A.A. guns added.

FINLAND.

ARMOURED GUNBOATS.

Väinämöinen. **Ilmarinen**

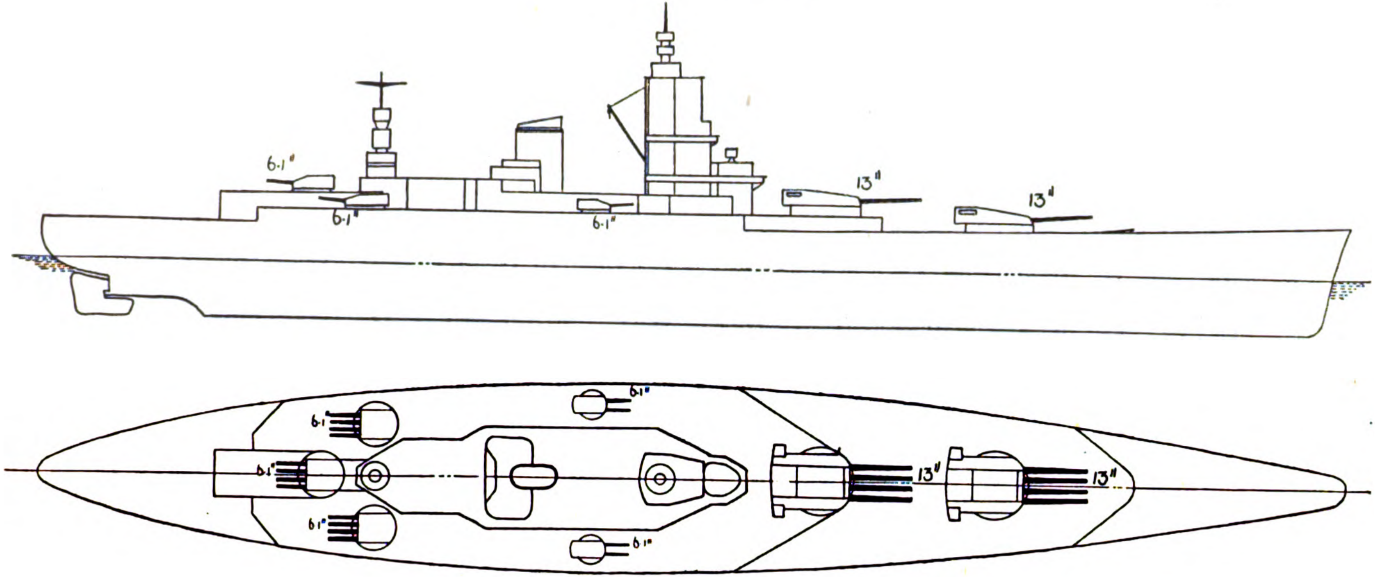


Length, 305 ft.; 3,900 tons; Speed, 15 knots.
Armament, 4—10-in.; 8—4-in.
Completed, 1932—33.

FRANCE.

BATTLESHIPS.

Dunkerque. Strasbourg.

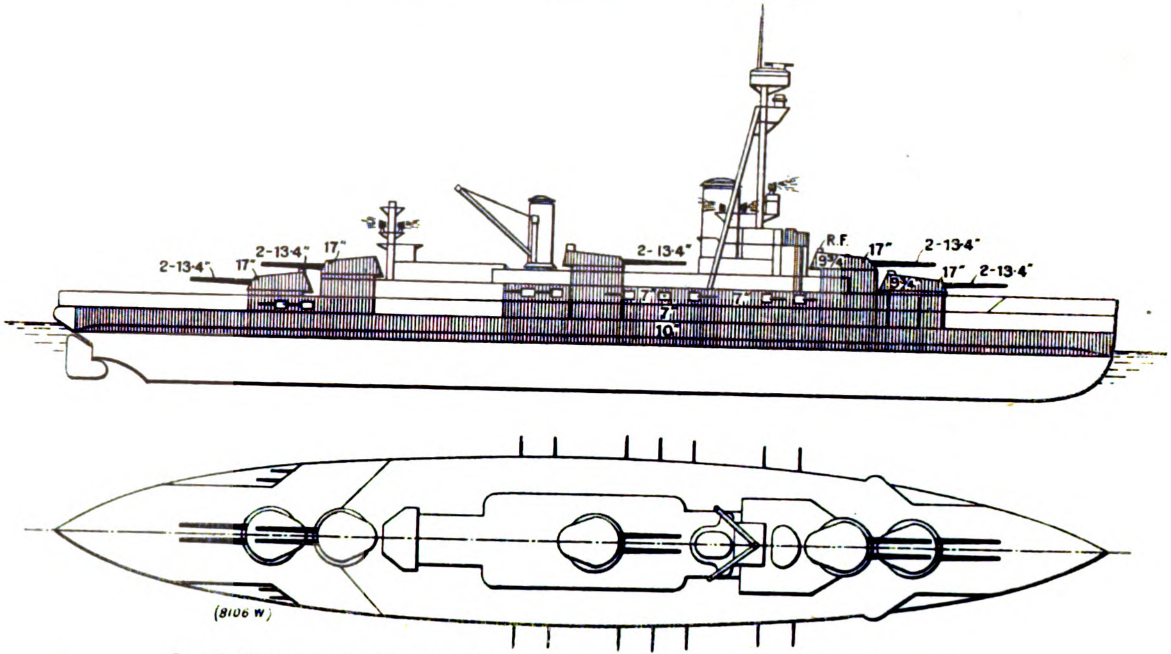


Length, 706 ft.; 26,500 tons; Speed, about 29 knots. Completed, 1936.
Armament, 8—13-in.; 16—5·1-in., 40 smaller; 1 catapult; 4 aircraft.
Catapult fitted on quarter deck at M.L., and crane fitted on port side at break of deck.

FRANCE.

BATTLESHIPS.

Bretagne. Lorraine. Provence.



Length (extreme), 544 ft. 6 ins. ; 22,189 tons ; Speed, 21 knots ; Completed, 1915–16 ; Modernised, 1925–27. Converted to oil burning, 1931.

Armament, 10—13·4-in. ; 14—5·4-in. ; 8—3-in. A.A. ; 5—3-pr. ; 2—1-pr. ; 4 submerged 18-in. torpedo tubes. 4 seaplanes. 1 catapult.

Correction to plan.—The ships have now tall main topmasts and no fore topmasts.

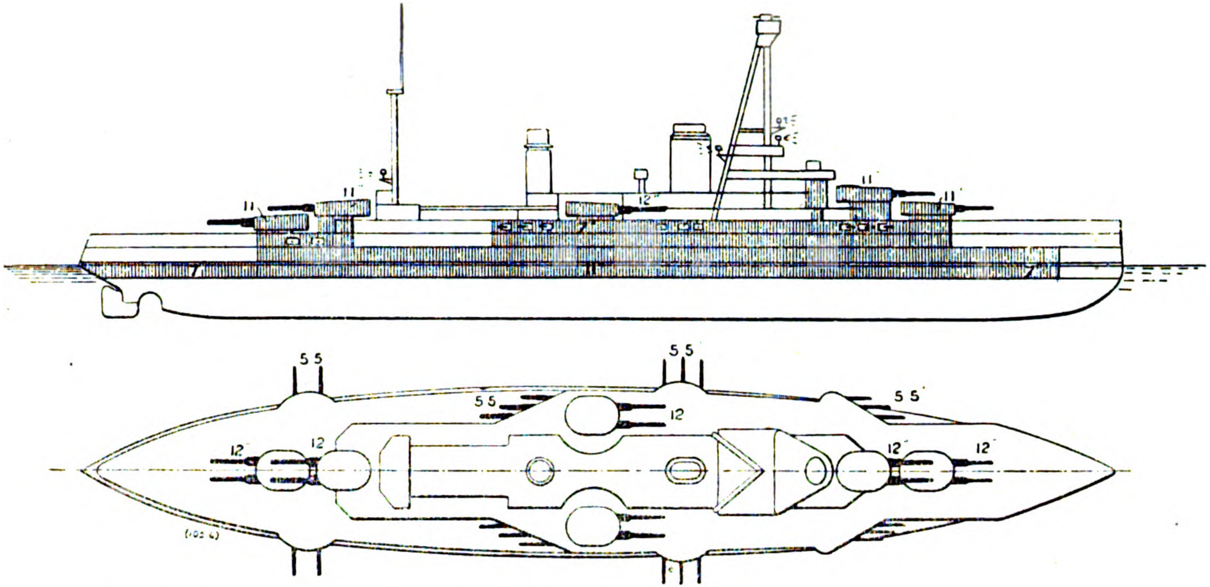
NOTE.—Lorraine has been reconstructed. The midships turret has been removed and a hangar fitted in its place. Machinery is modernised and speed increased. Improved protection is fitted. 8—3·9-in. A.A. fitted in lieu of 3-in. A.A.'s. 2—13·4-in. guns removed.

Cranes fitted abreast funnel. Bridgework extended.

FRANCE.

BATTLESHIPS.

Courbet. **Paris.**



Length (extreme), 551 ft. ; Length B.P., 541 ft. 4 ins. : 22,189 tons ; Speed, 20 knots ; Completed, 1913–14. Modernised in 1929. Converted to oil burning, 1931.

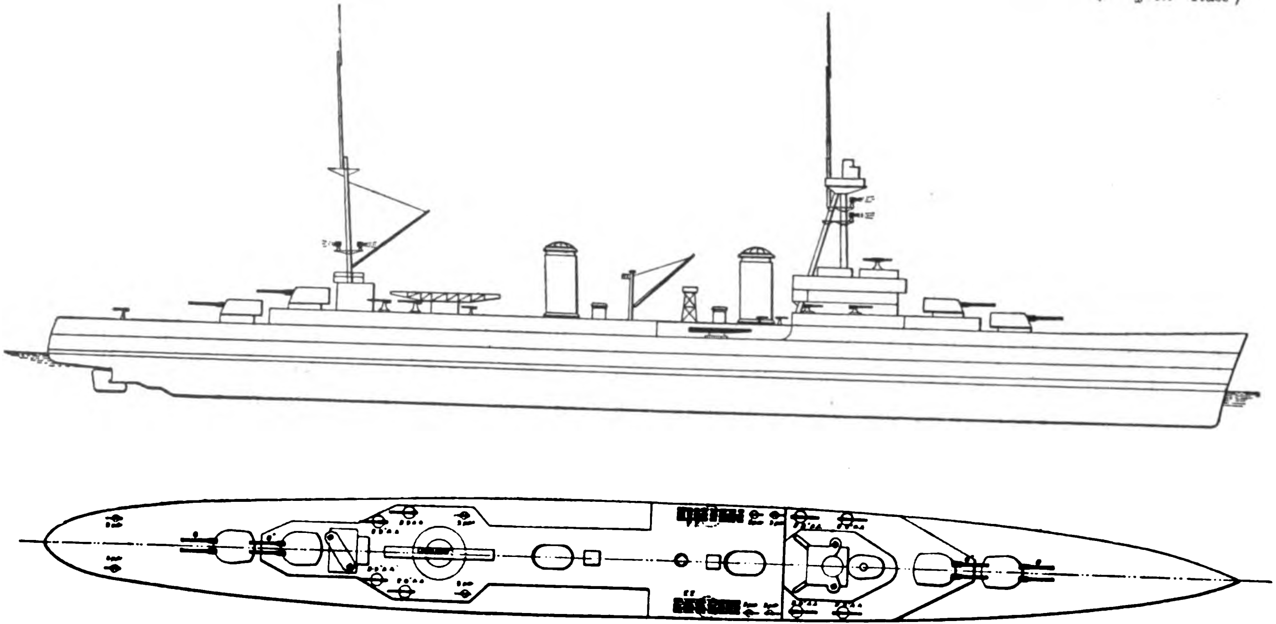
Armament, **12—12-in. ; 22—5·4-in. ; 7—3-in. A.A. ; 2—3-pr. ; 2—1-pr. ; 4 submerged 18-in. torpedo tubes.**

Corrections to plan.—**Cranes fitted abreast after funnel. After funnel reduced in height. Range-finder fitted on B turret.**

FRANCE.

CRUISERS.

Duqussne. **Tourville.** (*"Duquesne" Class.*) **Suffren.** **Colbert.** **Foch.** **Dupleix.** (*"Suffren" Class*)



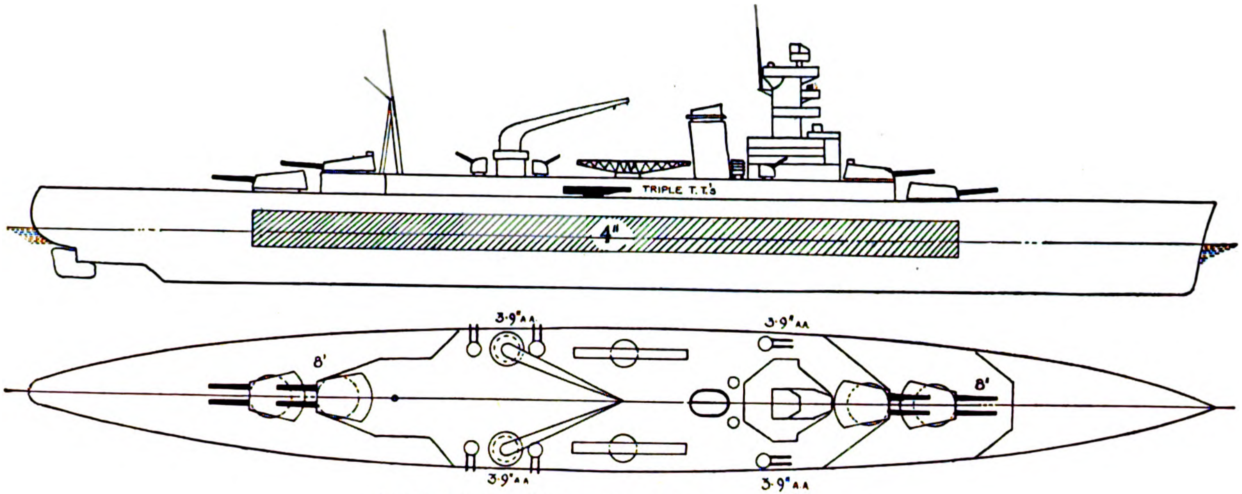
Length (between perpendiculars), 607 ft. (Duquesne and Tourville (extreme), 626 ft. 8 ins.); 10,000 tons; Speed, 32 knots (Duquesne and Tourville, 33·2 knots). Armament, 8—8-in., 8—3-in. A.A. (Dupleix, Colbert and Foch have 8—3·5-in. A.A.); 8—1-pr.; 2—triple 21-in. T.T.'s. 2–3 seaplanes.

The above plan is for Duquesne and Tourville. The others differ slightly from this in details of bridges, cranes, catapults, etc. Suffren has 2 catapults in the position shown above. Colbert, Dupleix and Foch have tripod mainmasts, 2 catapults between the funnels and the two cranes abreast the after funnel; fore topmasts removed in Dupleix and Colbert, and shortened in Duquesne, Tourville and Foch.

FRANCE.

CRUISER.

Algérie.



Length (extreme), 610 ft. 3 ins.; 10,000 tons; Speed, 31 knots.
Armament, 8—8-in.; 12—3·9-in. A.A.; 8—1·5-in.; 16 M.;
1 catapult; 2 seaplanes.

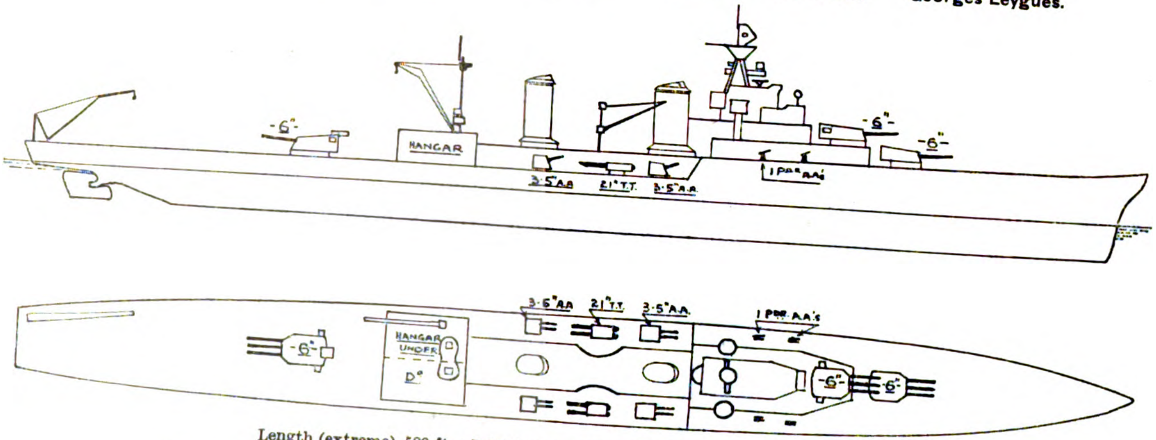
Correction to plan.—The aircraft cranes are not sided as shown, but lie fore and aft from a structure on the middle line between funnel and mainmast.

Superstructure amidships modified and two cranes fitted.

FRANCE.

CRUISERS.

Jean-de-Vienne. La Galissonnière. Marseillaise. Gloire. Montcalm. Georges Leygues.



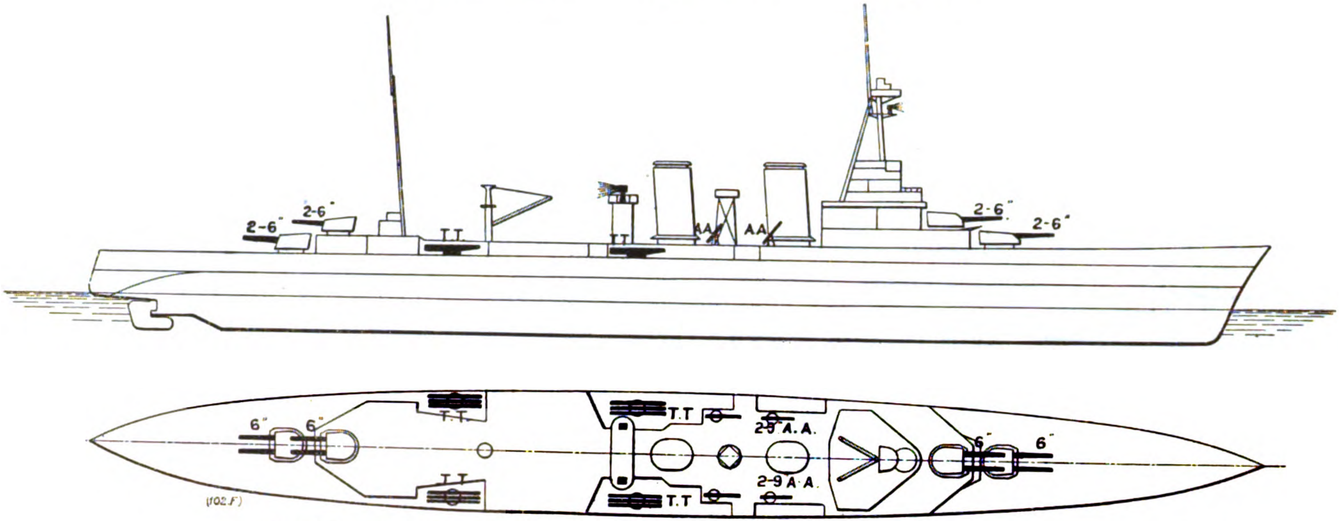
Length (extreme), 589 ft.; 7,600 tons; Completed, 1935-37; Speed, 31 knots.
Armament, 9–6-in.; 8–3·5-in A.A.; 8–·5 in. A.A.; 4–21·7-in. torpedo tubes; 4 seaplanes; 1 catapult
Fitted with Hein landing canvas at the stern. Catapult fitted on after turret.

FRANCE.

CRUISERS.

"Duguay-Trouin" Class.

La Motte Picquet. **Duguay-Trouin.** **Primauguet.**



Length (extreme), 594 ft. 10 ins.; **Length B.P., 575 ft.; 7,249 tons; Speed, 34 knots. Completed, 1926–27.**
Armament, 8—6·1-in.; 4—3-in. A.A.; 2—3-pr.; 4 M.; 1 L.; **4 triple torpedo tubes (21·7-in. torpedoes); 1 catapult; 1 seaplane**

NOTE.—**Reported** to have protection to magazines.

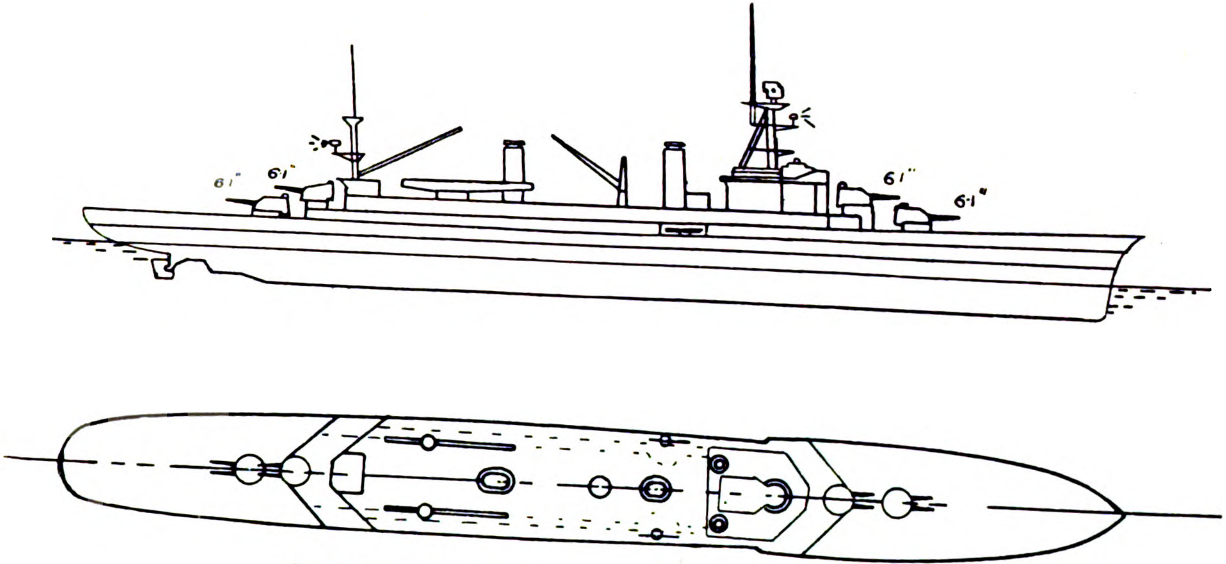
Correction to plan.—Catapult is fitted on quarter deck.

Fore topmast removed and masthead modified.

FRANCE.

TRAINING CRUISER.

Jeanne d'Arc.



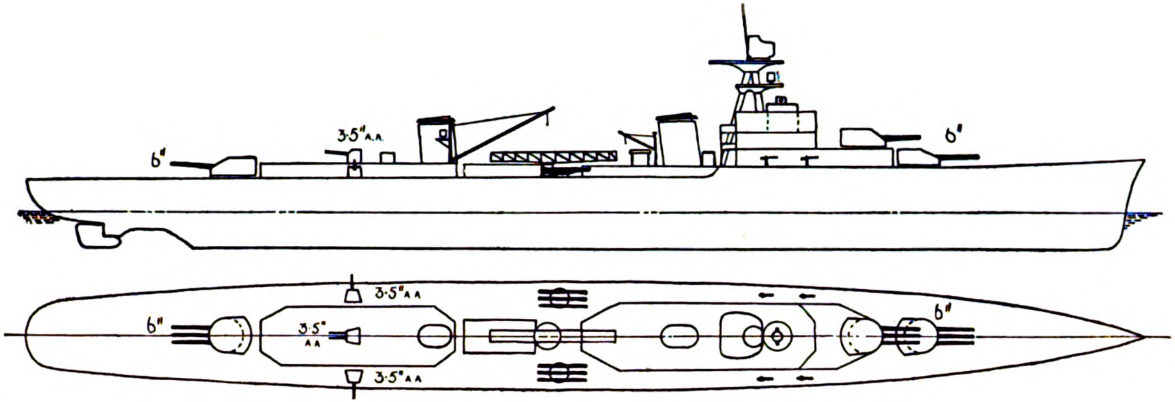
Length (extreme), 557 ft. 8 ins.; 6,496 tons; Speed, 26 knots; Completed, 1931.
Armament, 8—6·1-in.; 4—3-in. A.A.; 2—1·5-in.; 2 M.; 2—21·7-in. torpedo tubes;
2 seaplanes.

Correction to plan.—The catapults and fore topmast have been removed.

FRANCE.

CRUISER MINELAYER.

Emilé Bertin.

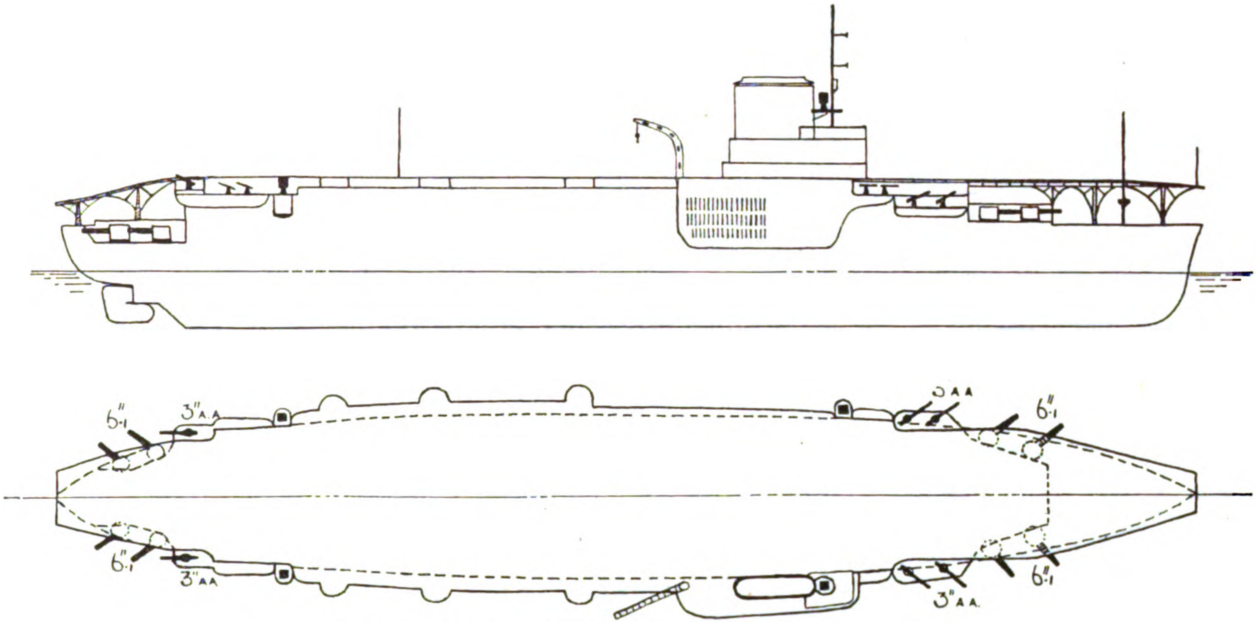


Length (extreme), 580 ft. 9 ins.; 5,886 tons; Speed, 34 knots. Completed, 1934.
Armament, 9—6-in.; 4—3·5-in. A.A.; 4—1·5 A.A.; 8 M.; 200 mines; 6—21·7-in. torpedo tubes; 1 catapult; 2 aircraft.
Correction to plan.—Small pole mast fitted on fore side of after turret.

FRANCE.

AIRCRAFT CARRIER.

Béarn.



Length (extreme), 599 ft. ; 22,146 tons ; Speed, 21·5 knots ; Completed, 1928.

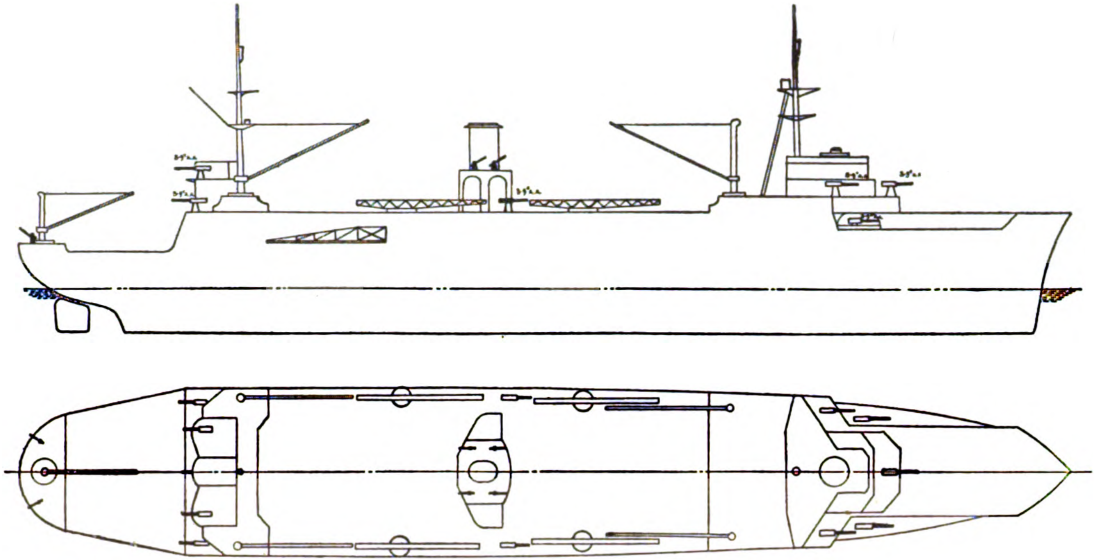
Armament, 8—6·1-in. ; 6—3-in. A.A. ; 8—1-pr. A.A. ; 12 M. A.A. ; 4—21·7-in. torpedo tubes ; 41 planes.

Correction to plan.—Space between flight deck forward and upper deck partially blanked off. Framework fitted to after-side of funnel.

FRANCE.

AVIATION TRANSPORT.

Commandant Teste.

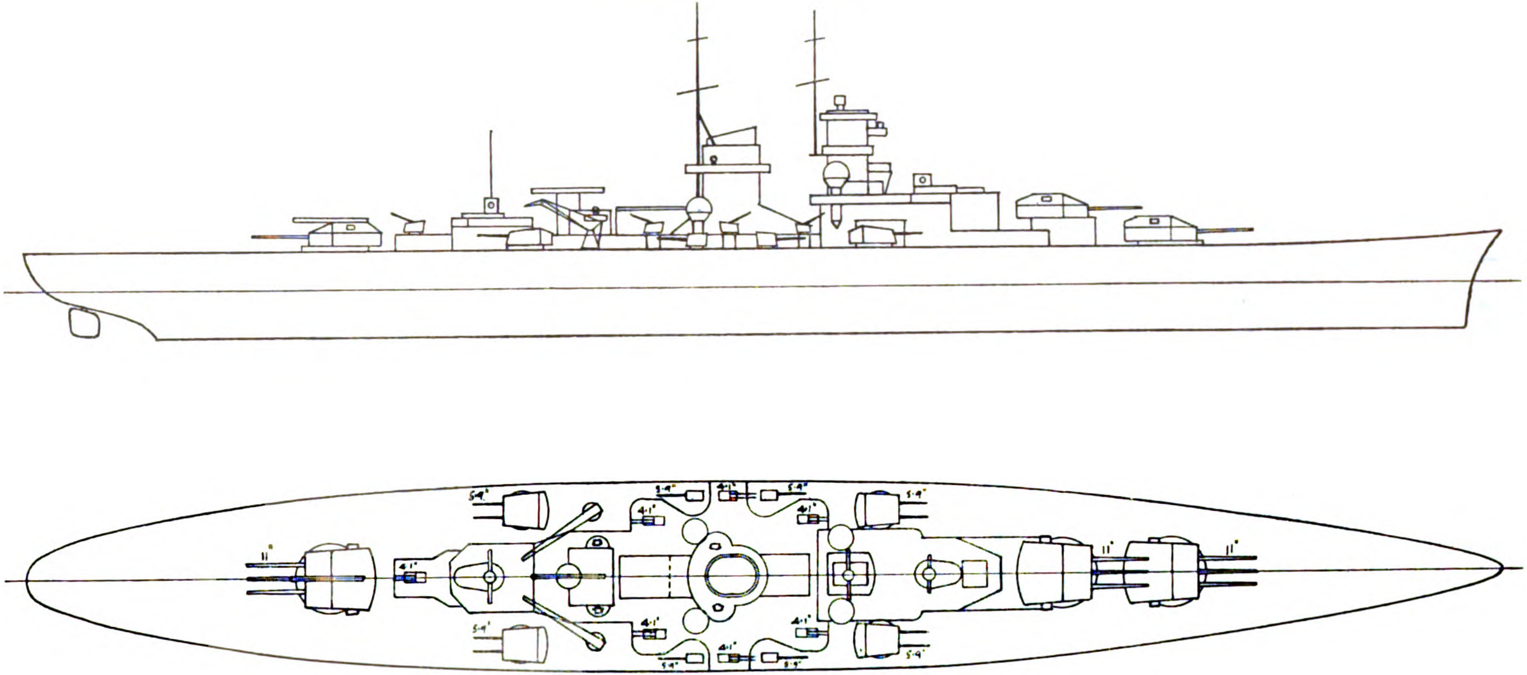


Length (extreme), 548 ft. 10,000 tons; Speed, 20½ knots; Completed, 1932.
Armament, 12—3·9-in. A.A.; 8—3-pr. A.A.; 12 M.; 19 planes.

GERMANY.

BATTLE CRUISERS.

Scharnhorst. **Gneisenau.**



Length (extreme), 741 ft. 6 ins.; 26,000 tons; 27 knots; Completed 1938–39.

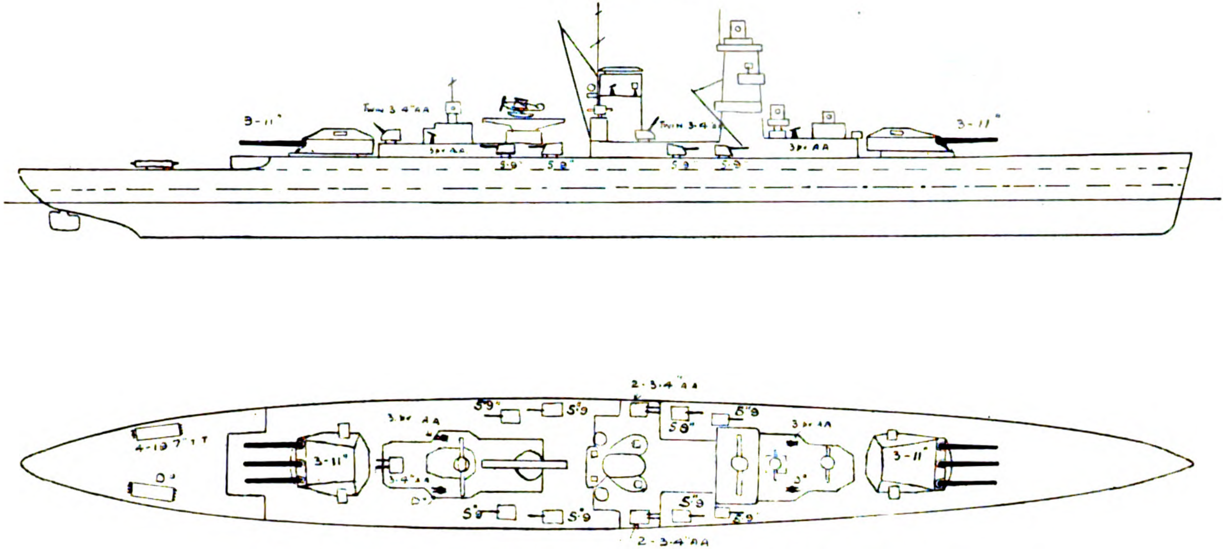
Armament, 9—11-in.; 12—5·9-in (4 twin turrets, 4 single mountings); 14—4·1-in. A.A.; 16—1·5-in. A.A.; 4 aircraft; 2 catapults.

NOTE:—Gneisenau's stempiece is vertical.

GERMANY.

ARMOURED SHIP.

Admiral Scheer.

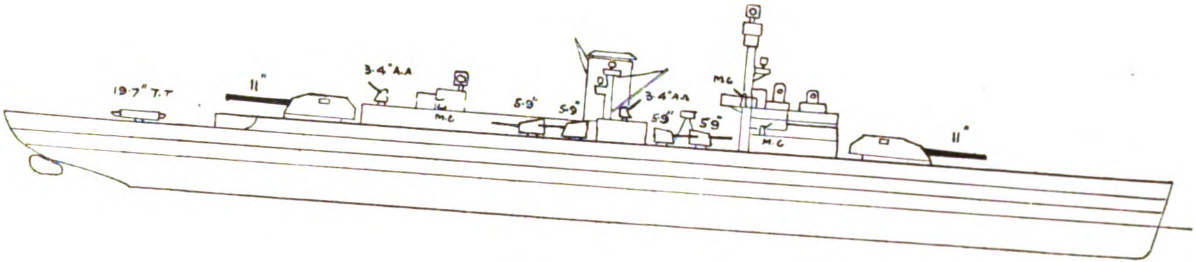


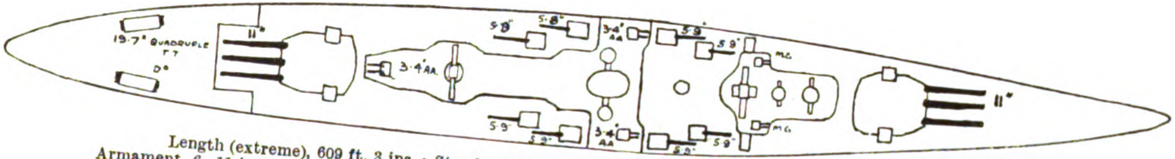
Length (extreme), 609 ft. 3 ins. ; Standard displacement, 10,000 tons ; Speed, 26 knots.
Armament, 6—11-in. ; 8—5·9-in. ; 6—4·1-in. A.A. ; 8—1·5-in. A.A.; 10 M.G. ; 8—21-in. torpedo tubes ; 1 catapult ; 2 aircraft.
Completed, 1934.

GERMANY.

ARMOURED SHIP.

Lutzow (ex Deutschland.)



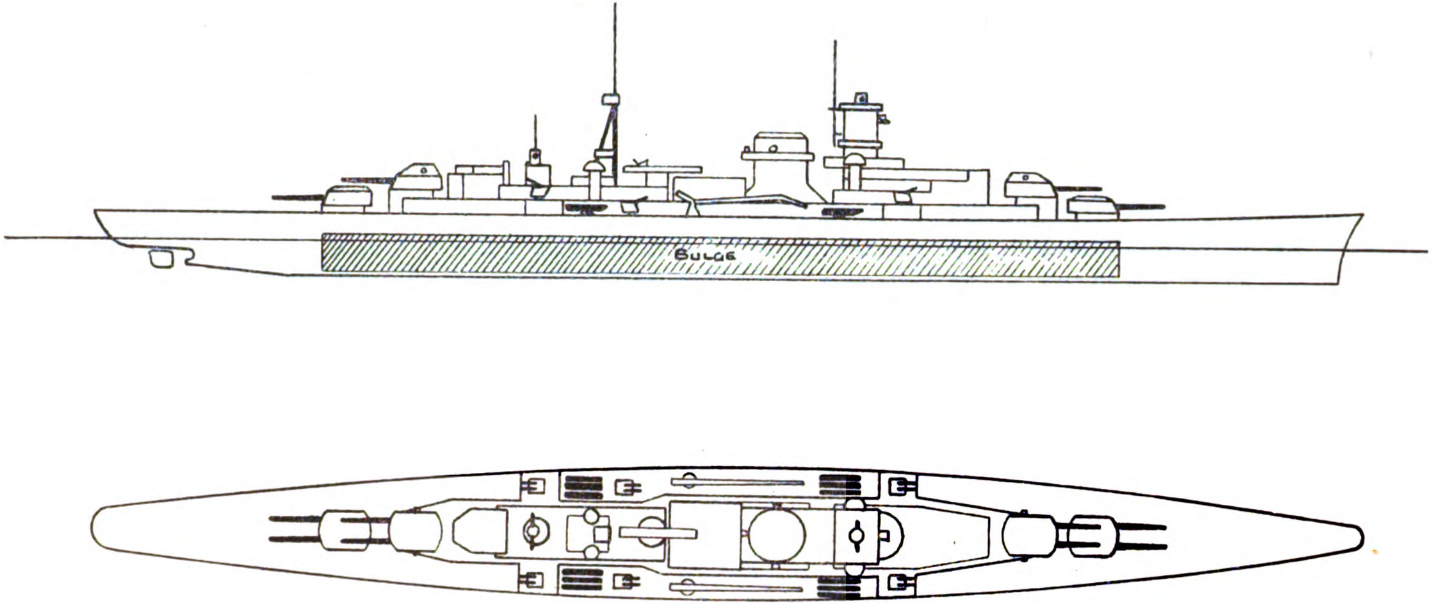


Length (extreme), 609 ft. 3 ins. ; Standard displacement, 10,000 tons ; Speed, 26 knots ; Completed, 1933.
Armament, 6—11-in. ; 8—5·9-in. ; 6—4·1-in. A.A. : 8—1·5-in. A.A. ; 10 M.G. ; 8—21-in. torpedo tubes ; 1 catapult ; 2 aircraft.
Pole mainmast fitted on aft side of funnel. Catapult fitted abaft funnel. Fore topmast fitted.
Pole mast fitted on after superstructure.

GERMANY.

CRUISER.

Admiral Hipper.

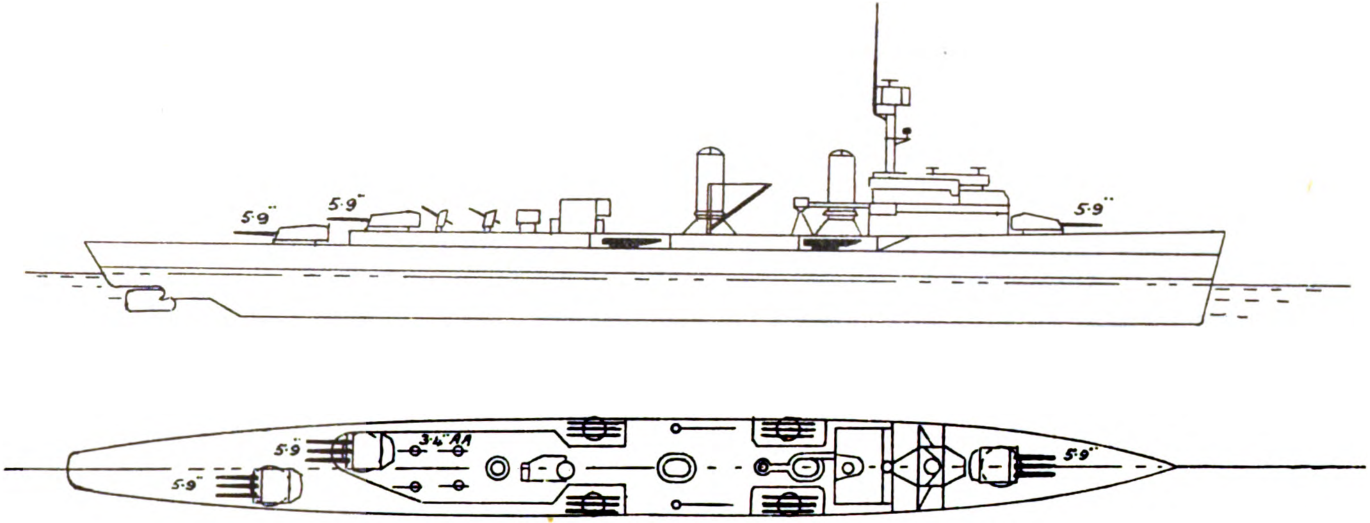


Length (on W.L.), 639 ft. 9 ins.; Standard displacement, 10,000 tons; **Speed, 32 knots; Completed, 1939.**
Armament, 8—8 in.; 12—4·1 in. A.A.; 12—1·45 A.A.; 12—21-in. **torpedo tubes; 1 catapult; 3 aircraft.**

GERMANY.

LIGHT CRUISERS.

Köln.

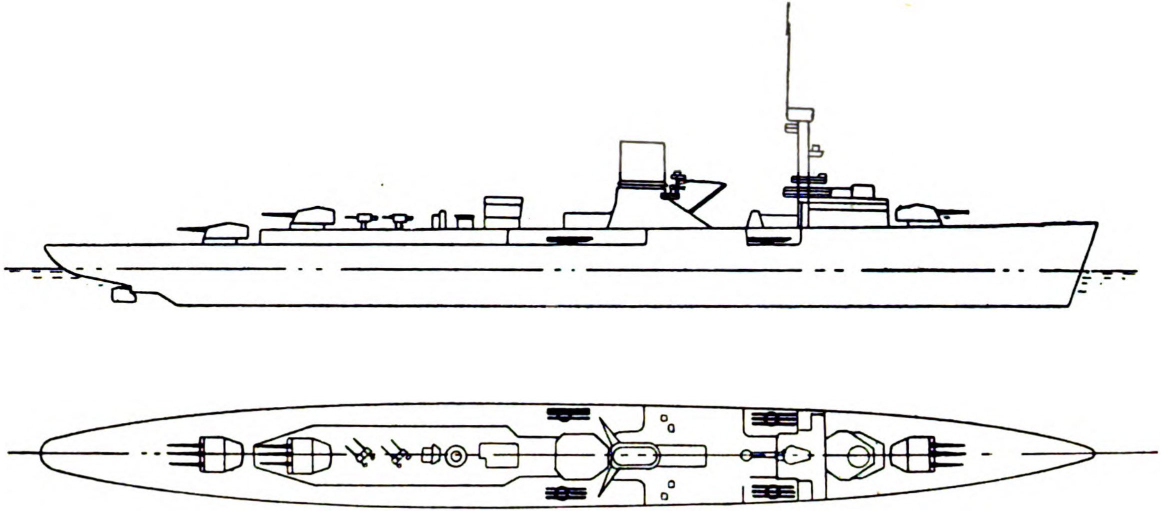


Length (extreme), 570 ft. 10 ins.; 6,000 tons; Speed, 32 knots; Completed, 1929–30.
Armament, 9—5·9-in.; 4—3·5-in. A.A.; 4 triple 21-in. torpedo tubes; 1 catapult; 2 aircraft.
Pole mainmast fitted on aft side of after funnel. Catapult fitted between funnels. Crane fitted in lieu of derrick on port side.

GERMANY.

LIGHT CRUISER,

Leipzig

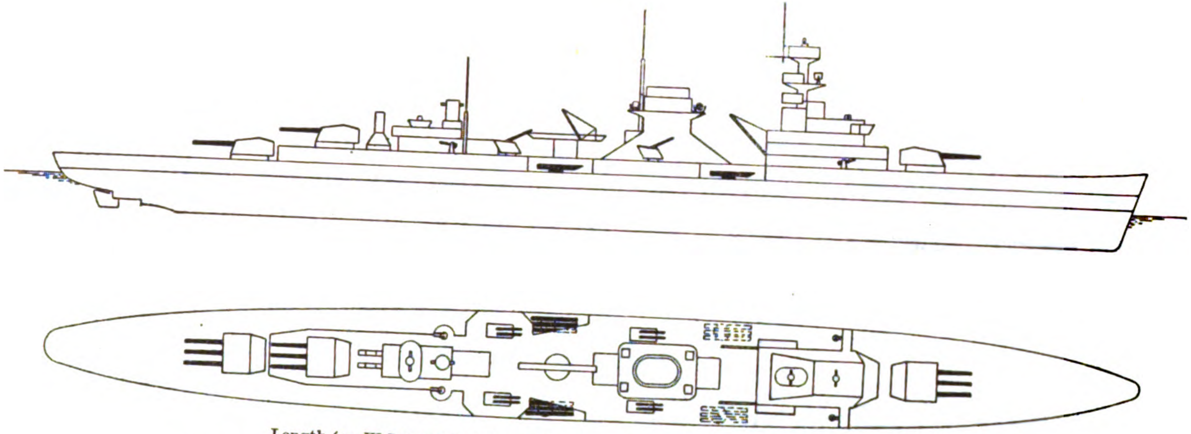


Length (extreme), 581 ft.; Length W.L., 543 ft. 10 ins.; 6,000 tons; Speed, 32 knots; Completed, 1931.
Armament, 9—5·9-in.; 8—3·5-in. A.A.; 8—1·5-in. A.A.; 4 triple 21-in. torpedo tubes; 1 catapult; 2 aircraft.
Corrections to plan.—Pole mainmast fitted on aft side of funnel. Catapult fitted between funnel and foremast. The derrick is fitted on the starboard side. A crane is fitted on port side nearest funnel. Fore topmast shortened.

GERMANY.

LIGHT CRUISER.

Nurnberg.

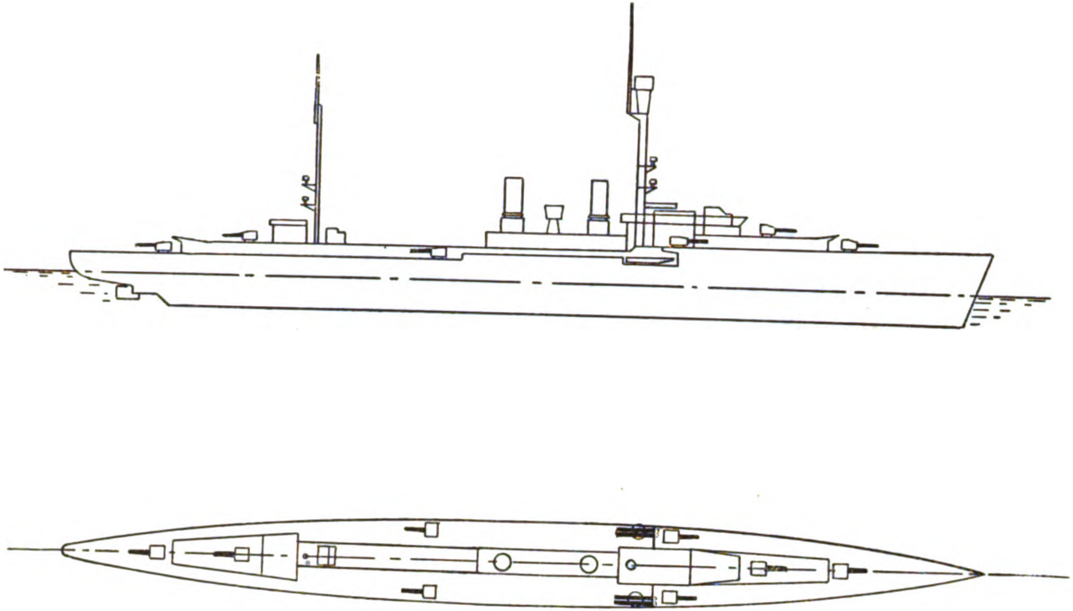


Length (on W.L.), 557 ft. 9 ins.; 6,000 tons; Speed, 32 knots; Completed, 1935.
Armament, 9—5·9-in.; 8—3·5-in. H.A.; 8—1·5-in. A.A.; 12—21-in. torpedo tubes; 1 catapult; 2 seaplanes.

GERMANY.

LIGHT CRUISER.

Emden.

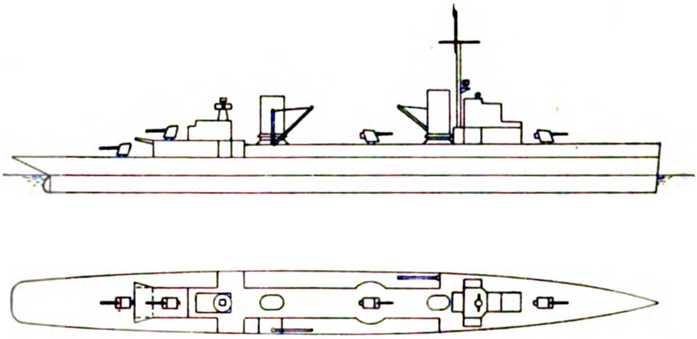


Length (extreme), 510 ft. 2 ins.; 5,400 tons; Speed, 29 knots; Completed, 1925.
Armament, 8—5·9-in.; 3—3·5-in. A.A.; 4 M.G.; 4—19·7-in. torpedo tubes in twin mountings.
The 5·9-in. guns are in twin mountings, 2 forward and 2 aft.
Corrections to plan.—Fore topmast shortened. Pole mast fitted to aft side of funnel.
Superstructure added before mainmast. Mainmast shortened and surmounted by a searchlight platform.

GERMANY.

GUNNERY TRAINING SHIP.

Bremse.

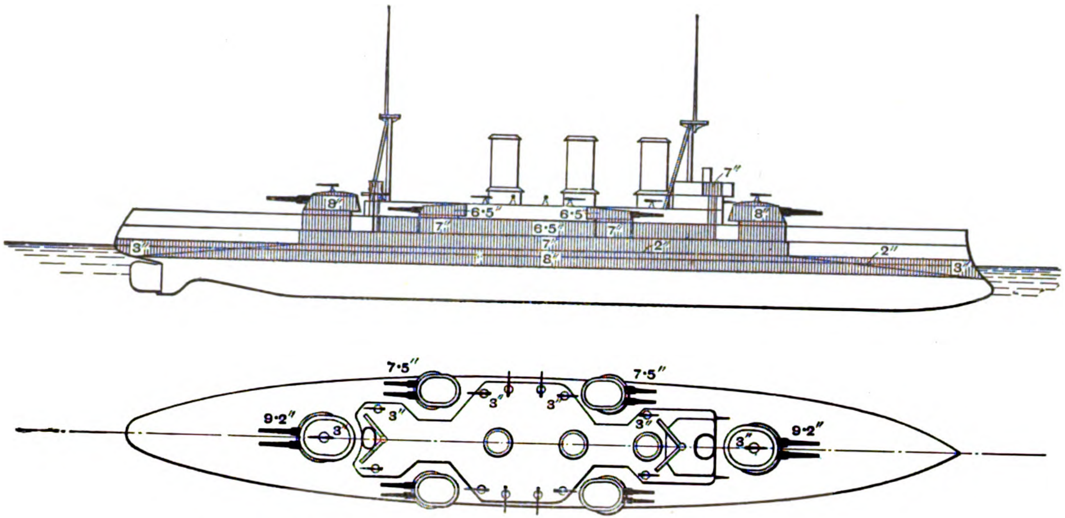


Length (extreme), 339 ft. 6 ins.; Speed, 27 knots; 1,460 tons; Completed, 1932.
Armament, 4—4·1-in.

GREECE.

ARMOURED CRUISER.

Giorgios Averoff.

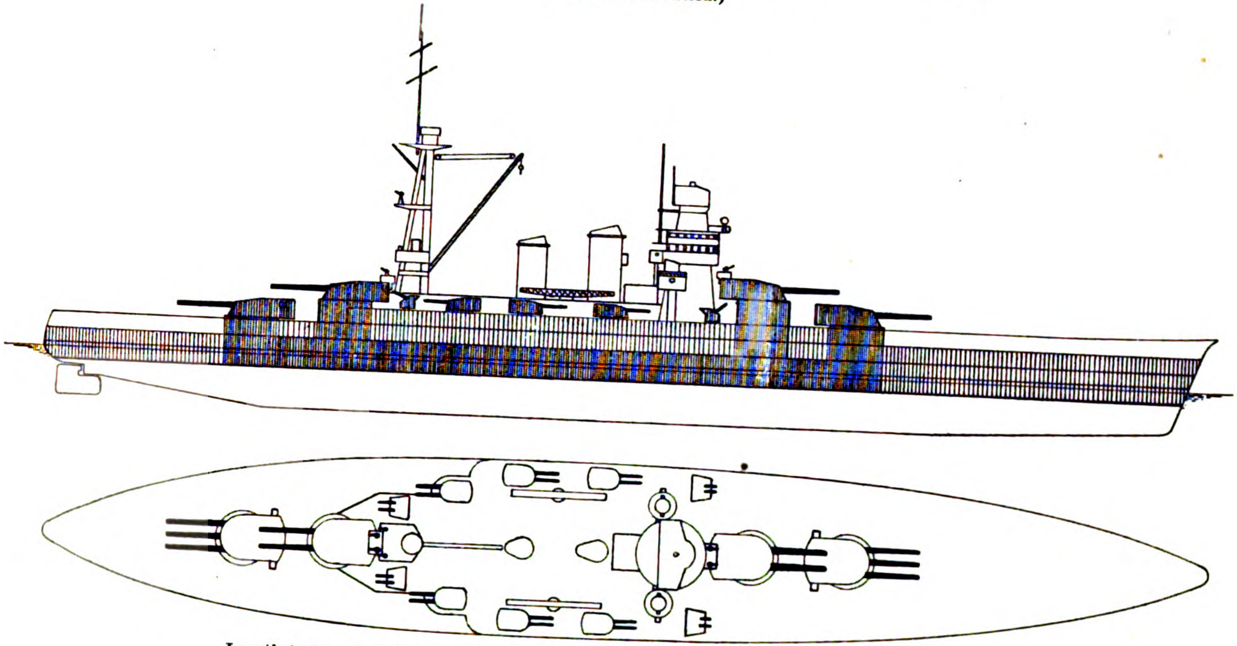


Length, 462 ft. ; 9,301 tons ; Speed, 22·5 knots ; Completed, 1911. Refitted, 1927.
Armament, 4—9·2-in. ; 8—7·5-in. ; 16—3-in. ; 2—3-in. A.A. ; 4—3-pr. ; 2 M. ; 3 submerged 18-in. torpedo tubes.
Correction to plan.—Bridgework modified. Control top fitted on foremast. Searchlight and derrick fitted to mainmast.

ITALY.

BATTLESHIPS.

Conte di Cavour. **Giulio Cesare.** **Andrea Doria.** **Caio Duilio.**
(After modernisation.)

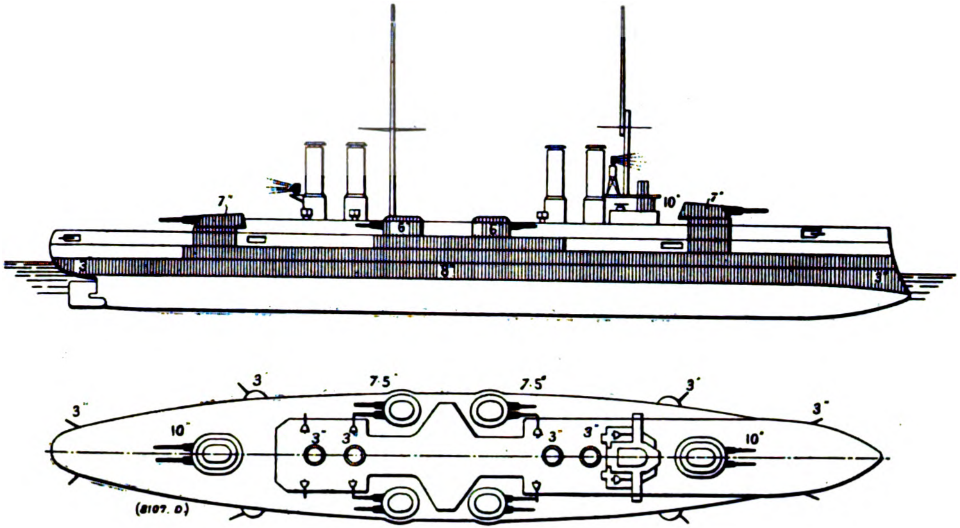


Length (extreme), 611 ft. 6 ins.; 23,622 tons; 27 knots; Completed, 1914–15; Modernised, 1937.
Armament {10—12·6-in.; 12—4·7-in.; 8—3·9-in. A.A.; 36 A.A. M.G.; 4 aircraft; 2 catapults in Cavour and Cesare.
{10—12·6-in.; 12—5·3 in.; 10—3·5 in. A.A.; 39 A.A. M.G.; 1 aircraft; 1 catapult in Doria and Duilio.

ITALY.

CRUISER.*

S. Giorgio.



Length (extreme), 462 ft. 2 ins.; Speed, 22 knots; 9,232 tons; Completed, 1910.

Armament, 4—10-in.; 8—7·5-in.; 8—3·9-in.; 2—3-pr.; 6 M.; 2 L.; 2—18-in. torpedo tubes.

Correction to plan.—Foremost and aftermost funnels removed.

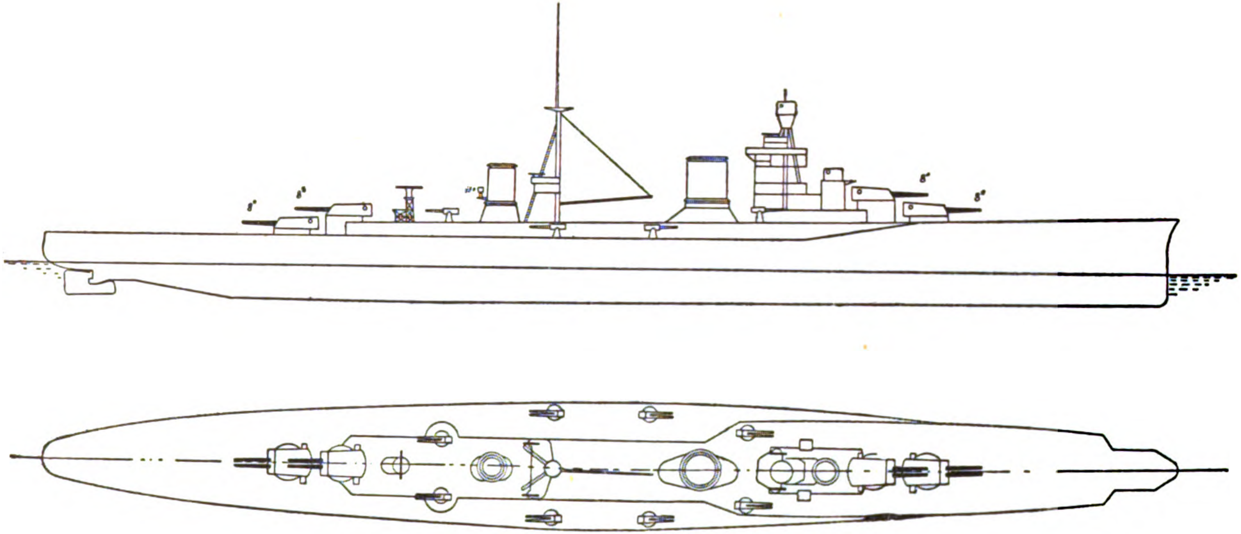
* Classified as a Battleship, 2nd class, in Italian official list.

ITALY.

CRUISER.

Modified "Trento" Class.

Bolzano.



Length (extreme), 646 ft. 3 ins.; 10,000 tons; Completed, 1932; Speed, 35 knots.

Armament, 8—8-in.; 12—3·9-in. A.A.; 8—1·5 M.A.A.; 8—·5 M.A.A.; 1 catapult; 2 aircraft; 8—21-in. torpedo tubes.

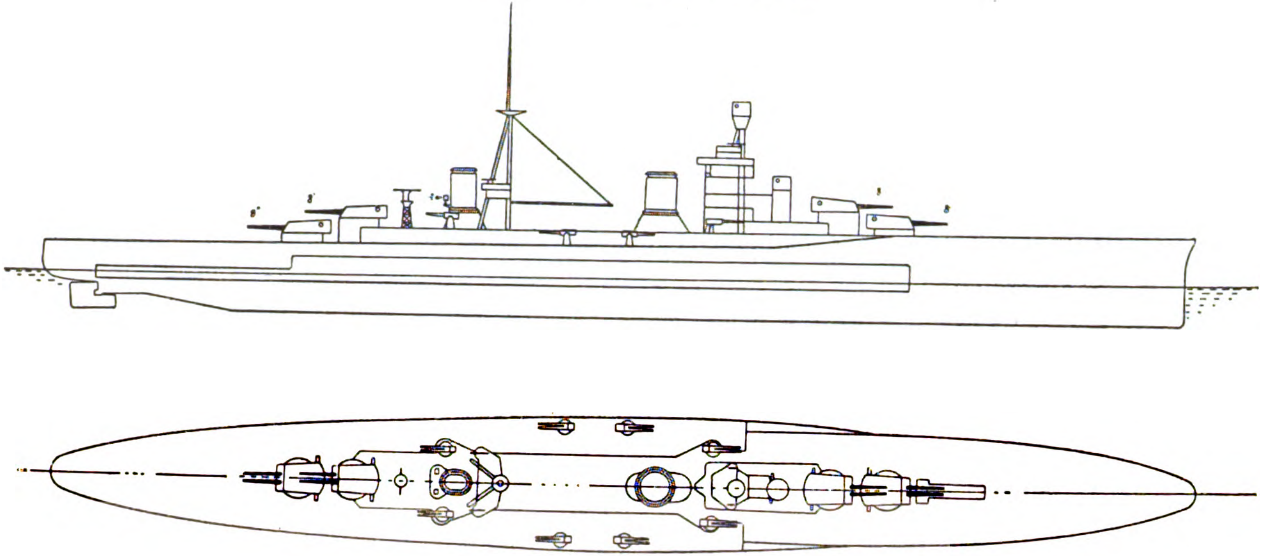
Corrections to plan.—Forward superstructure faired into funnel. Clinker screens fitted to funnels. Catapult fitted amidships.

ITALY.

CRUISERS.

"*Zara*" *Class.*

Pola. Zara. Fiume. Gorizia.

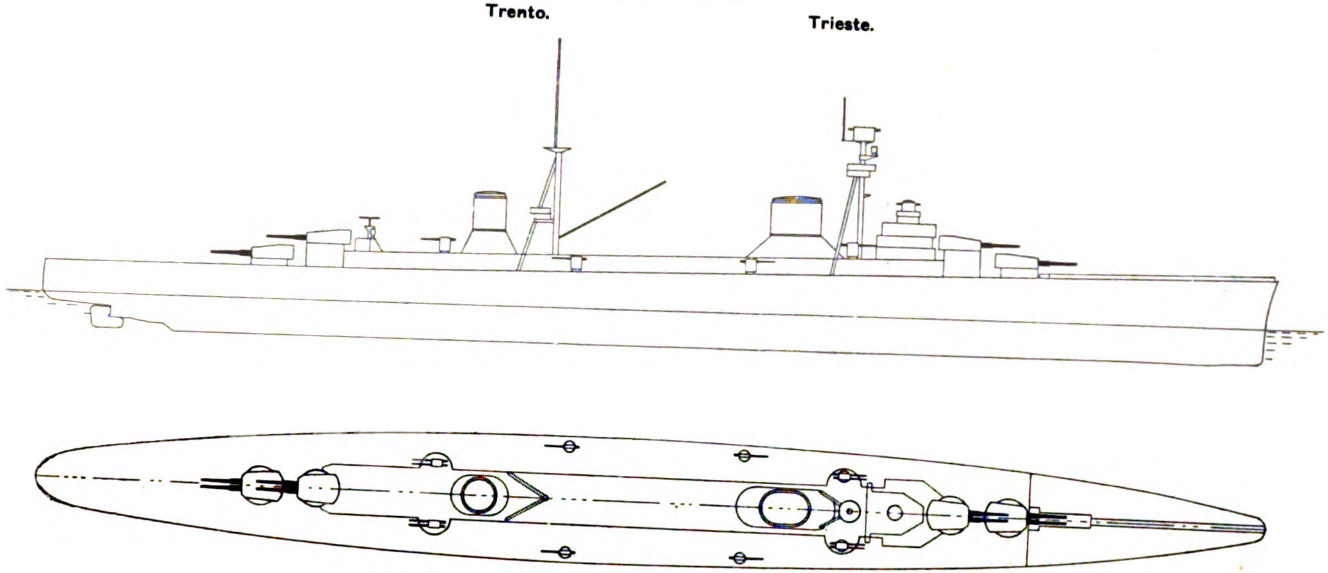


Length (extreme), 599 ft. 9 ins.; 10,000 tons; Speed, 32 knots.
Armament, 8—8-in.; 12—3·9-in.; 8—1·5-in. A.A.; 8—·5 M.A.A.; 1 catapult; 2 aircraft.
Corrections to plan.—Forward superstructure faired into funnel. Clinker screens fitted to funnels.

ITALY.

CRUISERS.

"Trento" Class.



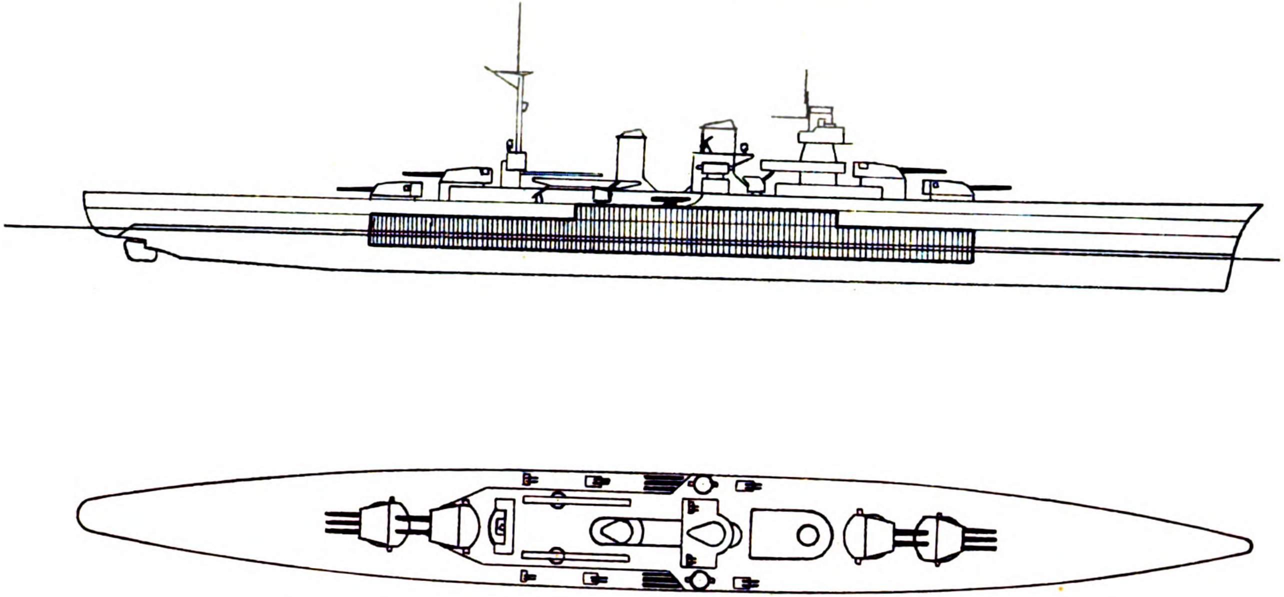
Length (extreme), 645 ft.; 10,000 tons; Speed, 35 knots; Completed, 1929.
Armament, 8—8-in.; 12—3·9-in.; 4—1·57-in. A.A.; 8—·5 A.A. M.G.; 4 twin torpedo tubes 21-in.
1 catapult; 2 aircraft.

Correction to plan.—The 4-in. guns between the funnels are twin guns. **Fore topmast removed. Bridgework extended.**

ITALY.

CRUISERS.

Duca Degli Abruzzi. **Guiseppe Garibaldi.**



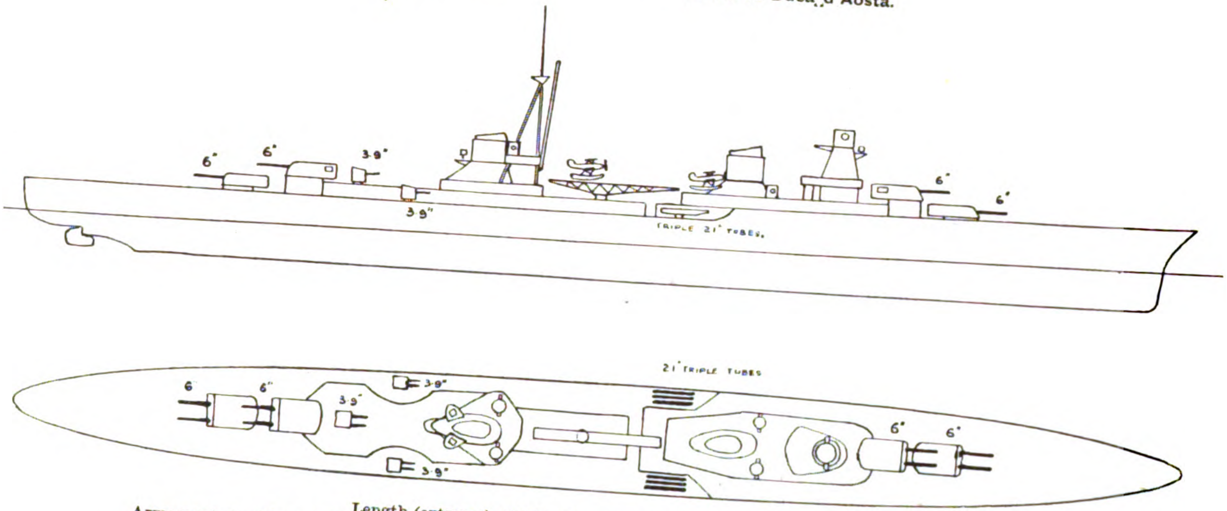
Length (extreme), 613 ft. 9 in.; Standard displacement, 7874 tons; Speed, 35 knots; Completed, 1936.
Armament, 10—6 in.; 8—3·9 in. A.A.; 8—1·5 in. A.A.; 6—21 in. torpedo tubes; 2 catapults; 4 aircraft.

ITALY.

CRUISERS

"Attendolo" Class.

Eugenio di Savoia. **Filiberto Duca d'Aosta.**



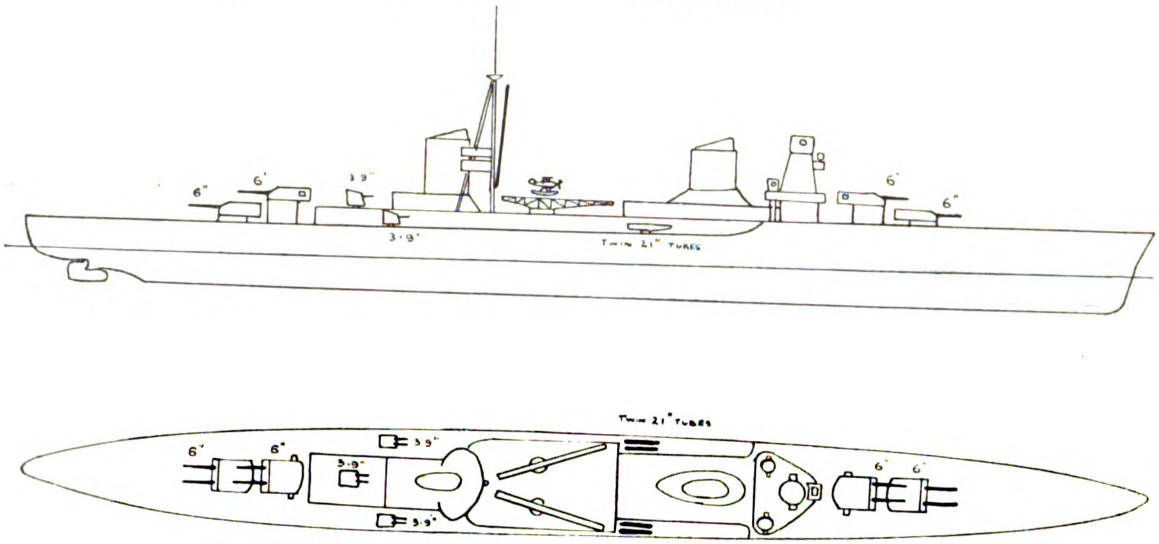
Length (extreme), 610 ft. 3 ins.; 7,283 tons; Speed, 36½ knots.
Armament, 8—6-in.; 6—3·9-in.; 8—1·5-in A.A.; 8—·5-in. A.A.; 2 triple 21-in. torpedo tubes; 1 catapult; 3 aircraft.

ITALY.

CRUISERS.

"*Condottieri*" Class.

Montecuccoli. **Muzio Attendolo.**



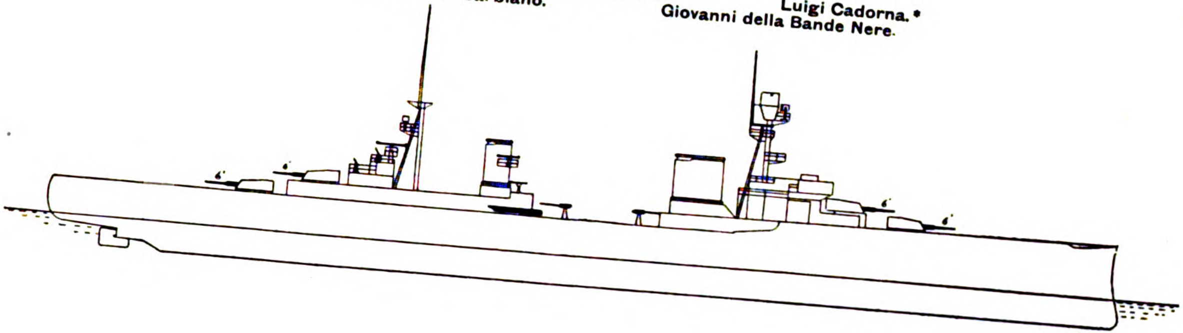
Length (extreme), 597 ft. 9 ins.; 6,941 tons; Speed, 37 knots; Completed, 1935.
Armament, 8—6-in.; 6—3·9-in. A.A.; 8—1·5-in. A.A.; 8—·5-in. A.A. M.G.; 2 twin 21-in. torpedo tubes; 1 catapult; 2 aircraft.
Correction to plan.—1 catapult fitted on M.L.

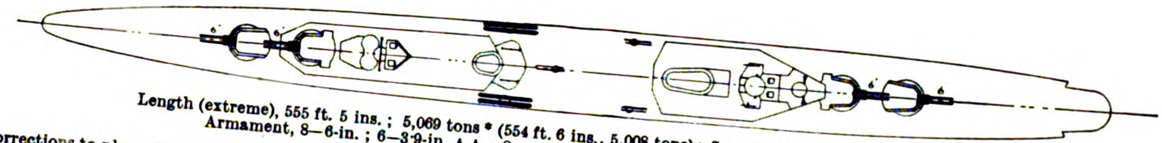
ITALY.

CRUISERS.

"*Condottieri*" Class.

Armando Diaz.*
Alberico di Barbiano.
Alberto di Guissano.
Luigi Cadorna.*
Giovanni della Bande Nere.





Length (extreme), 555 ft. 5 ins.; 5,069 tons * (554 ft. 6 ins., 5,008 tons); Speed, 37 knots; Completed, 1931–33.
Armament, 8—6-in.; 6—3·9-in. A.A.; 8—1·5-in. A.A.; 8—·5 in. A.A. M.G.; 4 torpedo tubes 21-in.;
1 catapult and 2 seaplanes.

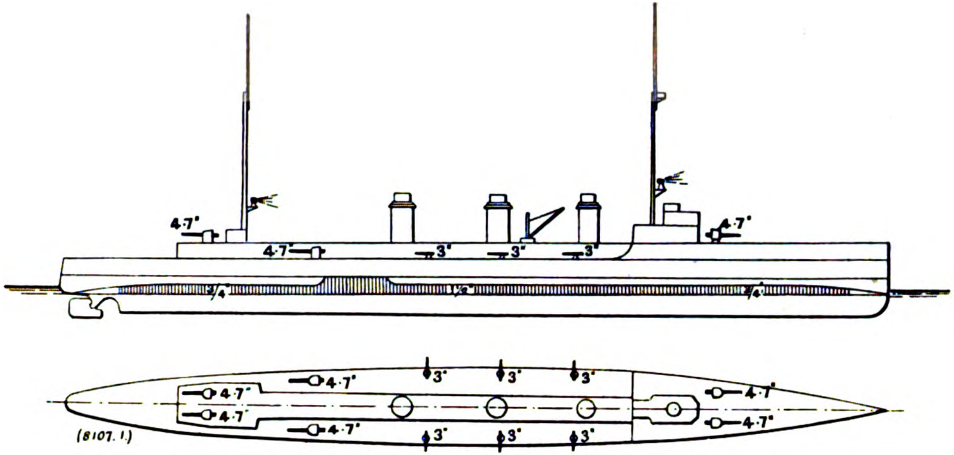
Corrections to plan: The bridge and foremast have been modified. The after twin 3·9-in. A.A. gun is at the superstructure level on a raised platform.
Fore topmast and stays to mainmast removed. Derrick fitted on foreside of mainmast.

*** In the Armando Diaz and Luigi Cadorna the mainmast is forward of the after funnel, the torpedo tubes are abreast the forward funnel, and the positions of the twin A.A. guns are reversed. the foremost gun being at forecastle deck level and the two after guns at upper deck level. The catapult is fitted between mainmast and X turret in Diaz and Cadorna; on forecastle in other ships.**

ITALY.

LIGHT CRUISER.*

Quarto.



Length (extreme), 431 ft. 9 ins.; Speed, 28 knots; 2,903 tons; Completed, 1913.
Armament, 6—4·7-in.; 4—3-in.; 2—1·57-in. A.A.; 3 M.; 2 above-water 18-in. torpedo tubes; 126 mines.

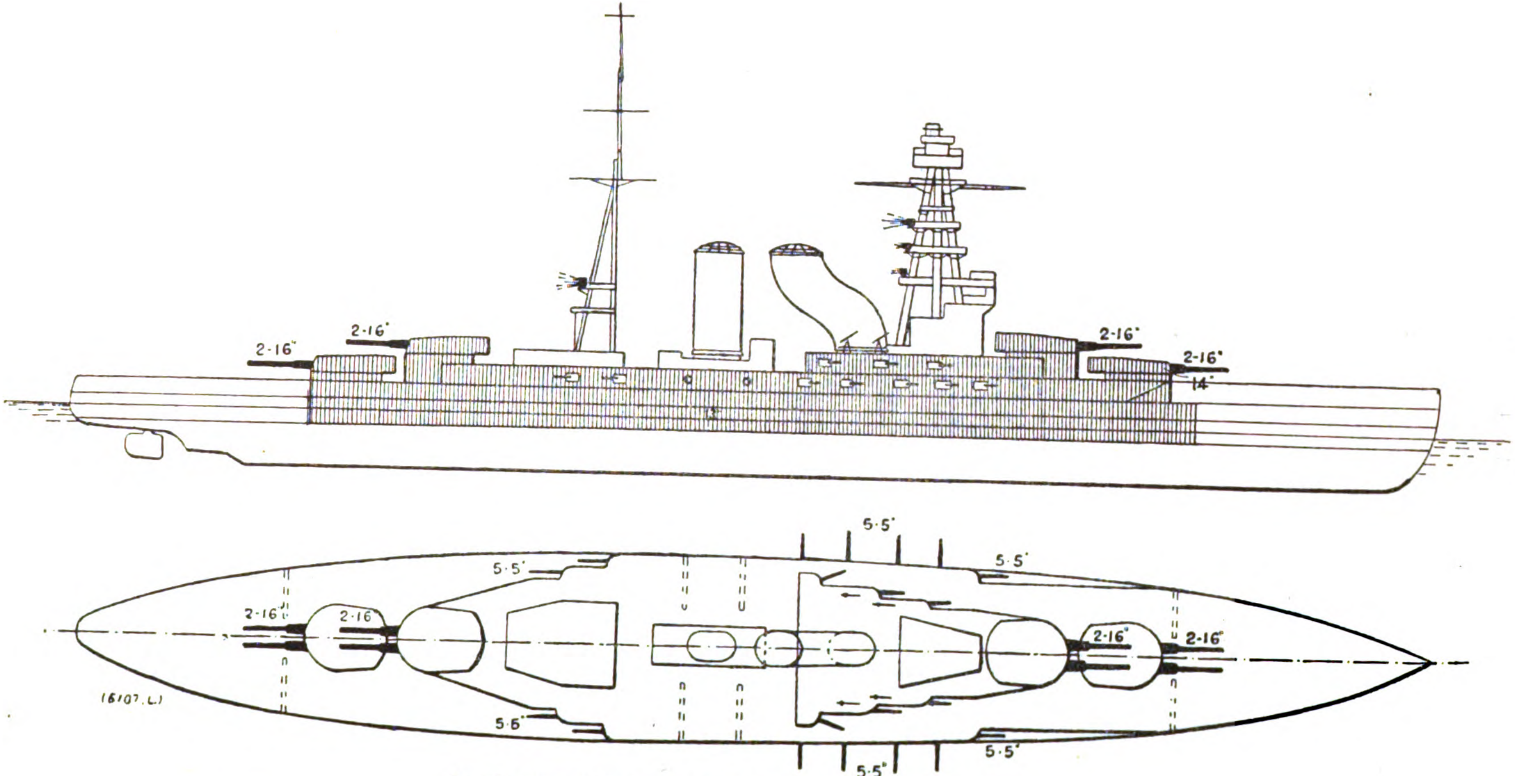
* Classified as Scout in Italian official list.

JAPAN

BATTLESHIPS.

"Nagato" Class.

Nagato. **Mutsu.**



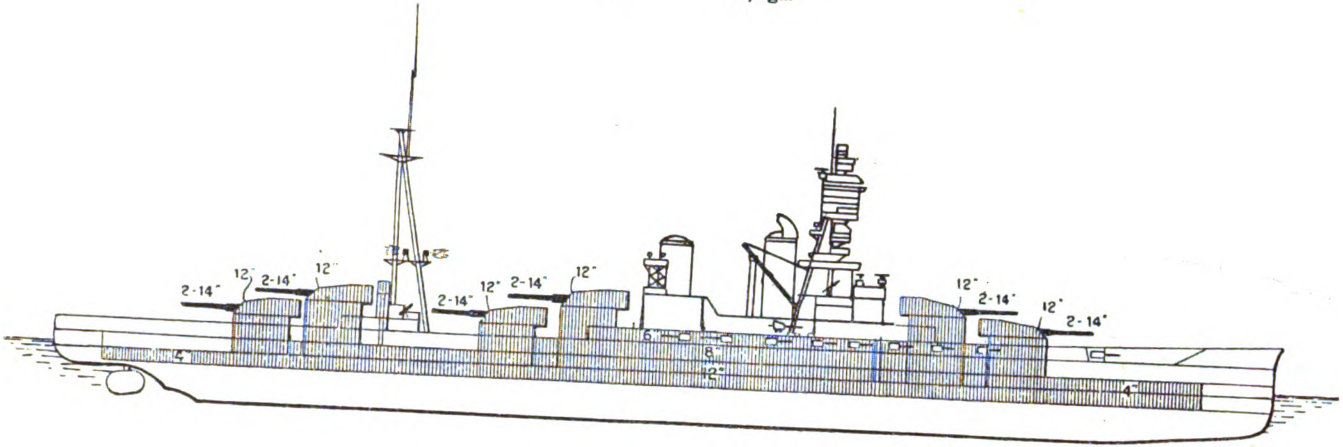
Length (extreme), 700 ft.; Speed, 26 knots; 32,720 tons; Completed, 1920-1921.
Armament, 8—16-in.; 20—5·5-in.; 8—5-in. A.A.; 8 M.A.A.; 1 catapult; 3 aircraft.
These ships were reconstructed 1935-36, a single funnel being fitted and a catapult added between mainmast and "X" turret.
Bridgework extended. Superstructure built round mainmast. Main topgallant mast removed.

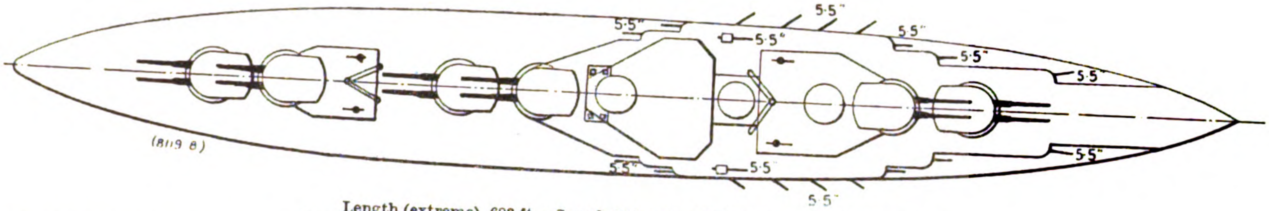
JAPAN.

BATTLESHIPS.

"*Fuso*" *Class.*

Ise. Hyuga.





Length (extreme), 683 ft. ; Speed, 23 knots ; 29,990 tons ; Completed, 1917–18.
Armament, 12—14-in. ; 18—5·5-in. ; 8—5-in. A.A. ; 8 M. ; 3 seaplanes ; 1 catapult.
Correction to plan.—Fore topmast and foremost funnel removed. Superstructure built round mainmast. Main topgallant mast removed. **Bridgework modified.**

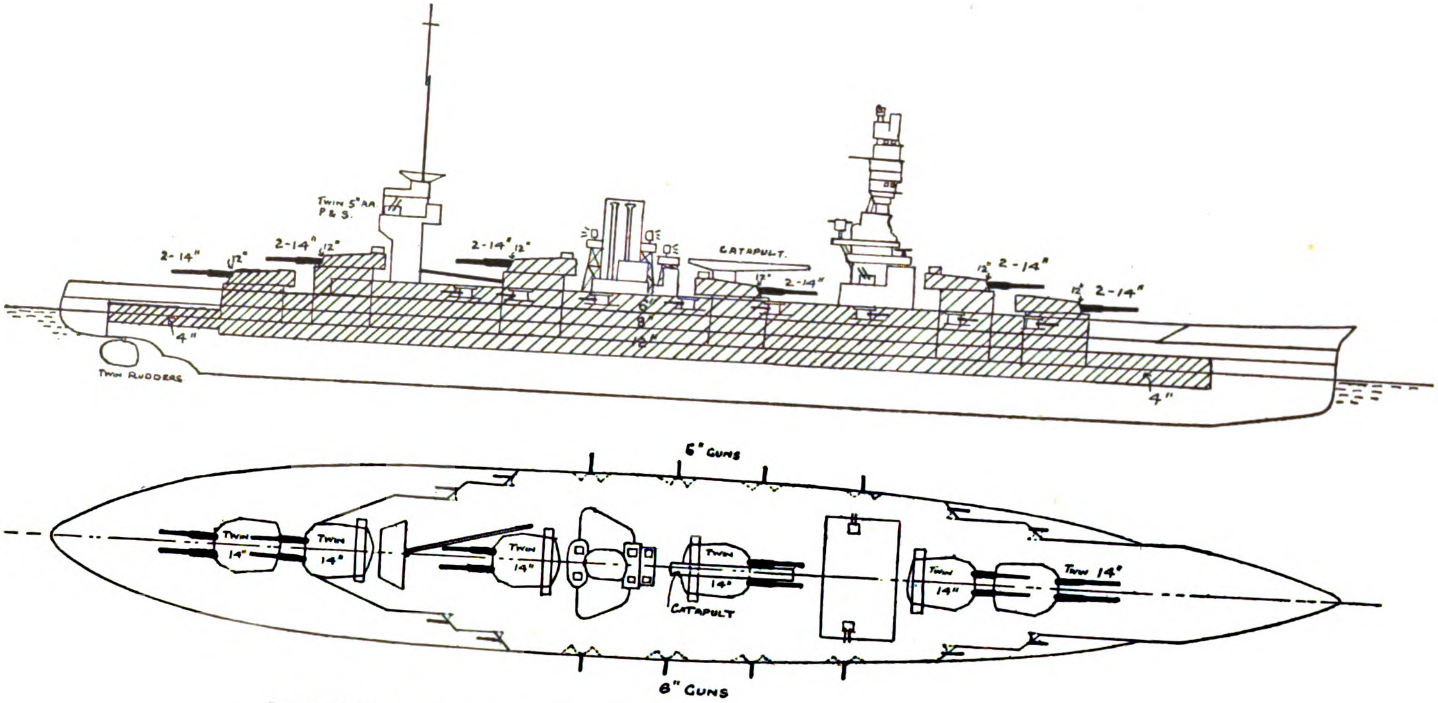
JAPAN.

BATTLESHIPS.

"Fuzo" Class.

Fuzo. **Yamashiro.**

(After reconstruction, 1934.)



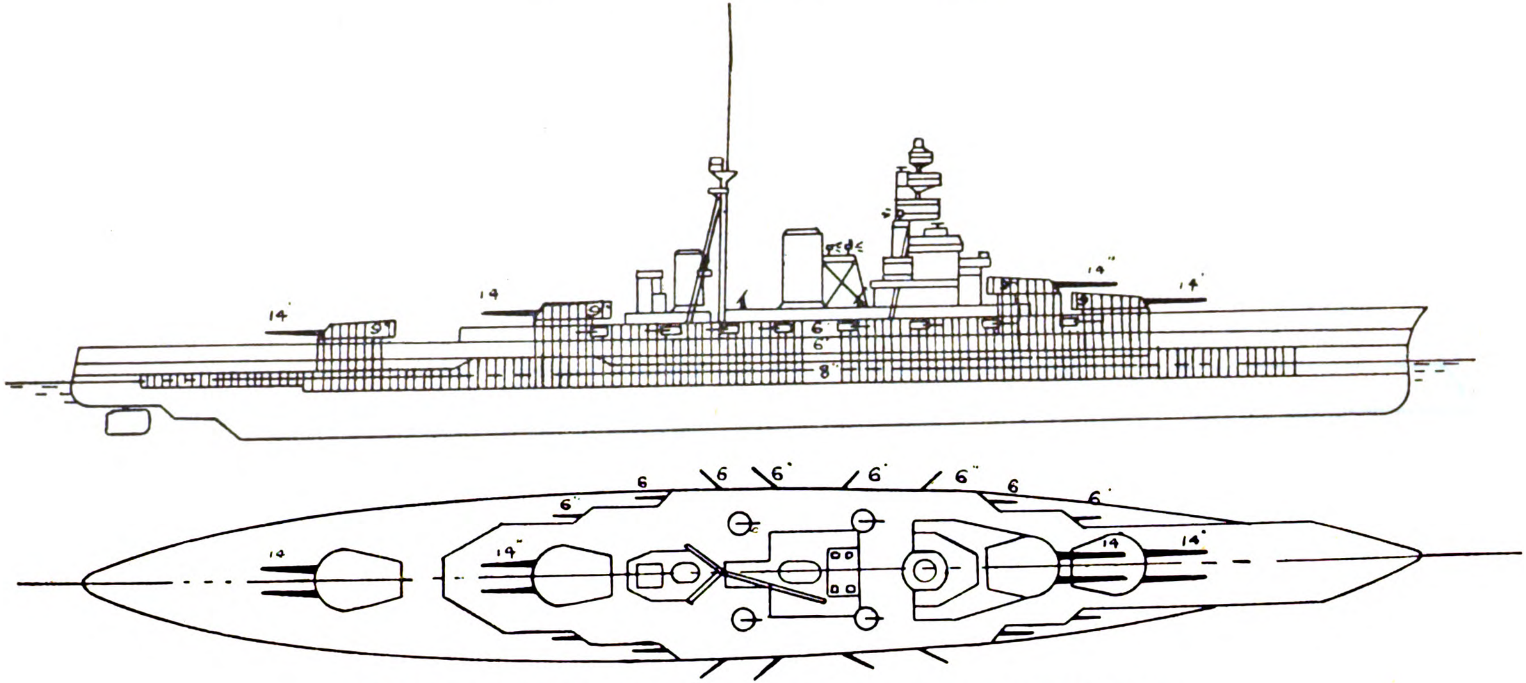
Length (extreme), 673 ft. ; Speed, 22½ knots ; 29,330 tons (standard) ; Completed, 1915. **Reconstructed, 1933.**
Armament, 12—14-in. ; 16—6-in. ; 8—5-in. A.A. ; 4 M.G. ; 4 L. ; 1 catapult ; 3 seaplanes.

JAPAN.

BATTLESHIPS.

"Kongo" Class.

Haruna. Kirishima. Kongo.

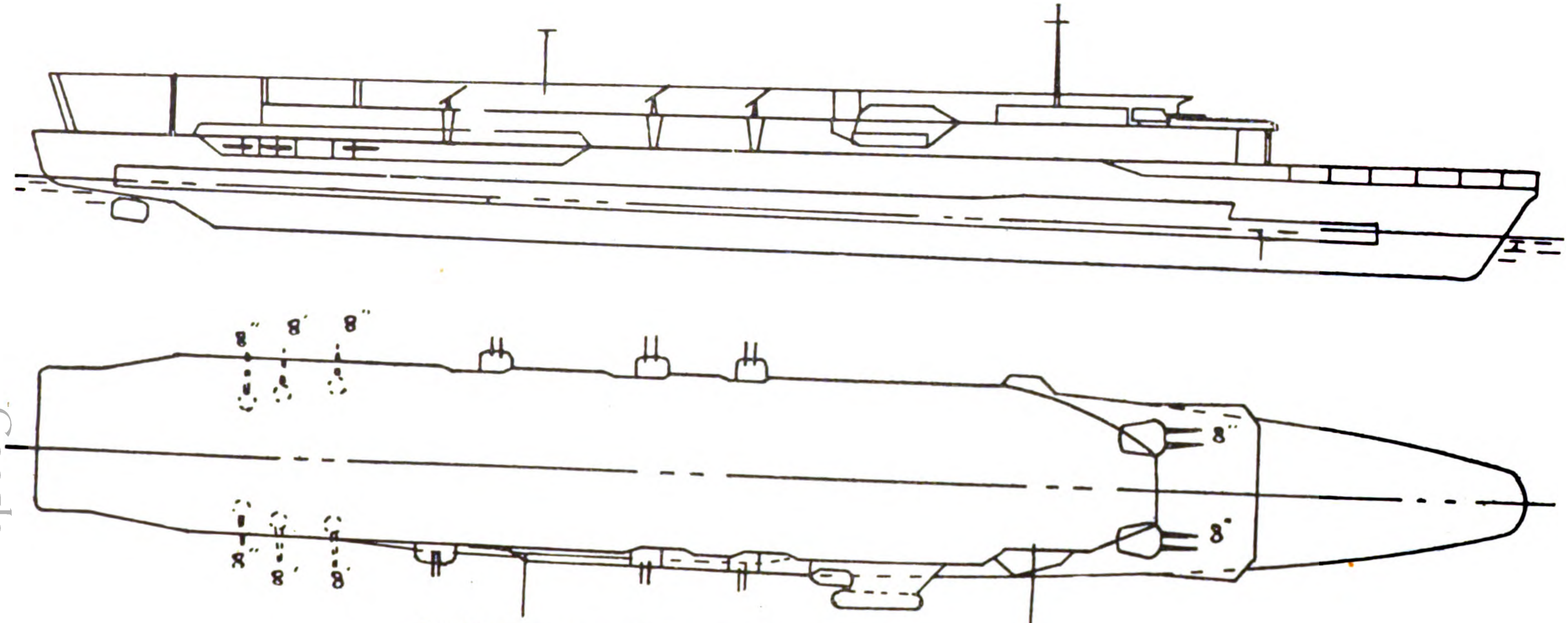


Length (extreme), 704 ft.; Speed, 26 knots; 29,330 tons; Completed, 1914-15. Reconstructed, 1935—36.
Armament, 8—14-in.; 16—6-in.; 8—5-in. A.A.; 4 M.; 4 submerged 21-in. torpedo tubes; 3 aircraft; 1 catapult.
Hiyei of this class has been converted to a Training Ship in accordance with the London Naval Treaty.
Corrections to plan.—The A.A. guns are in twin mountings. Derrick fitted between after turrets. Haruna and Kongo have funnels of equal height.

JAPAN

AIRCRAFT CARRIER.

Akagi.

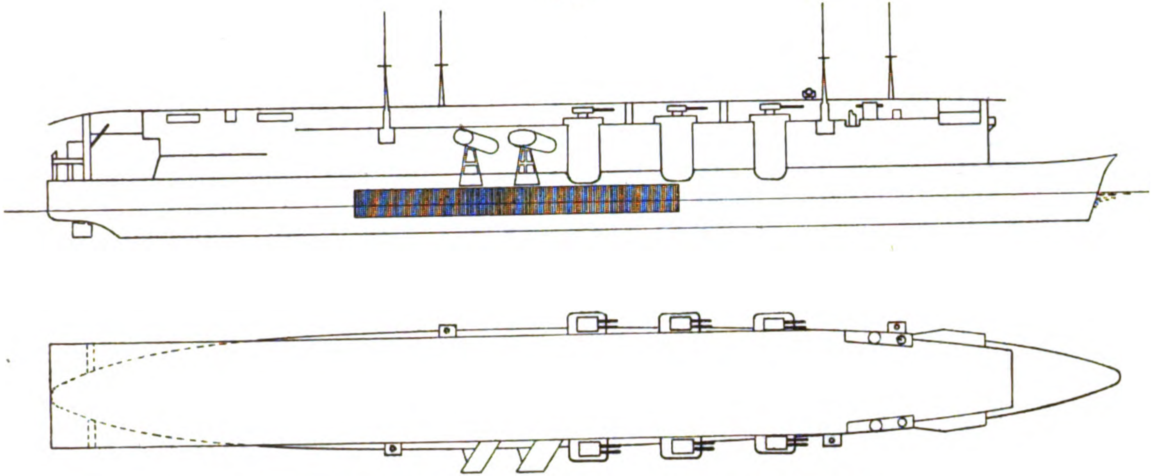


Length (between perpendiculars), 763 ft. ; 26,900 tons ; Speed, 28·5 knots ; Completed, 1927.
Armament, 10—8-in. ; 12—4·7-in. A.A. Accommodation for 50 planes.
Corrections to plan.—Superstructure added and flight deck extended forward.

JAPAN.

AIRCRAFT CARRIER.

Ryujo.

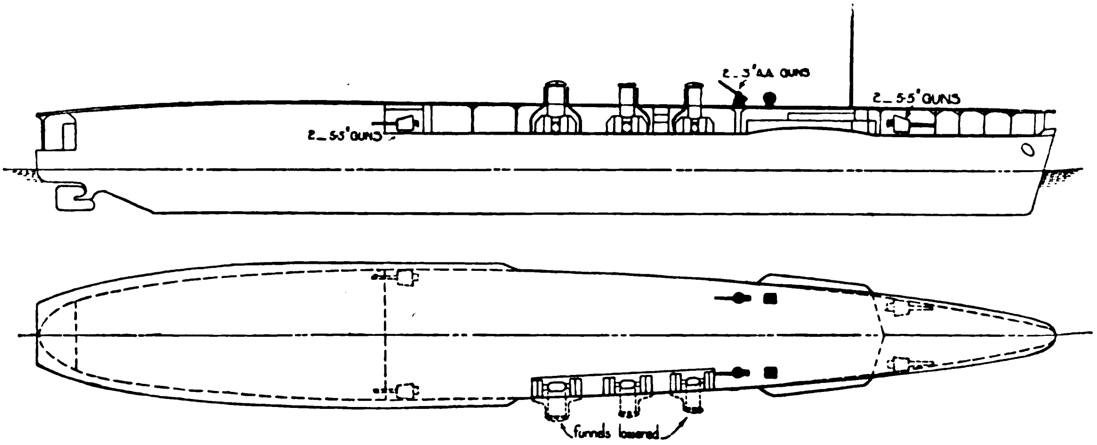


Length (on W.L.), 548 ft.; 7,100 tons; Speed, 26 knots; Completed, 1933.
Armament, 12—5·1-in. A.A. Accommodation for 24 planes.

JAPAN.

AIRCRAFT CARRIER.

Hosho

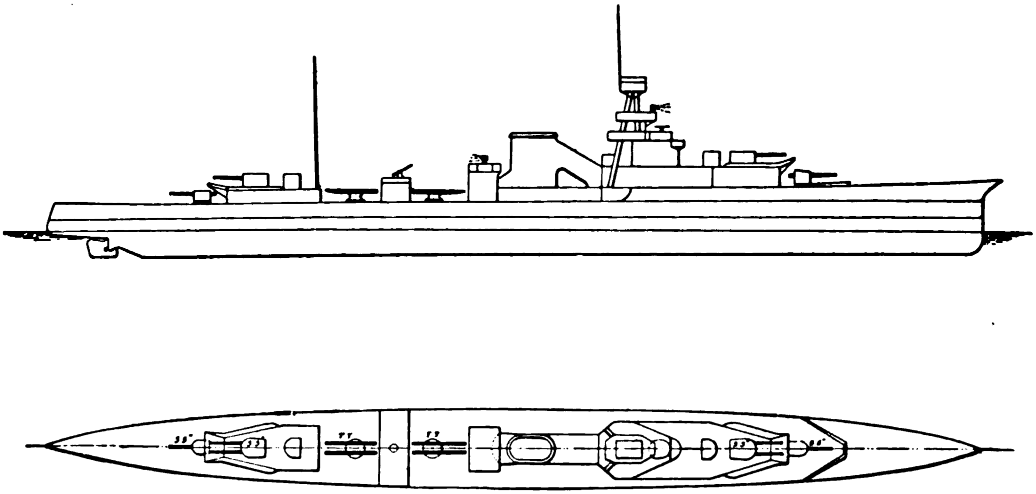


Displacement, 7,470 tons; Length B.P., 510 ft.; Speed, 25 knots; Completed, 1922.
Armament, 4—5·5-in.; 2—3-in. A.A.; Carries about 20 planes; Fitted with gyro-stabiliser.
Funnels hinge outboard.

JAPAN.

LIGHT CRUISER.

Yubari.

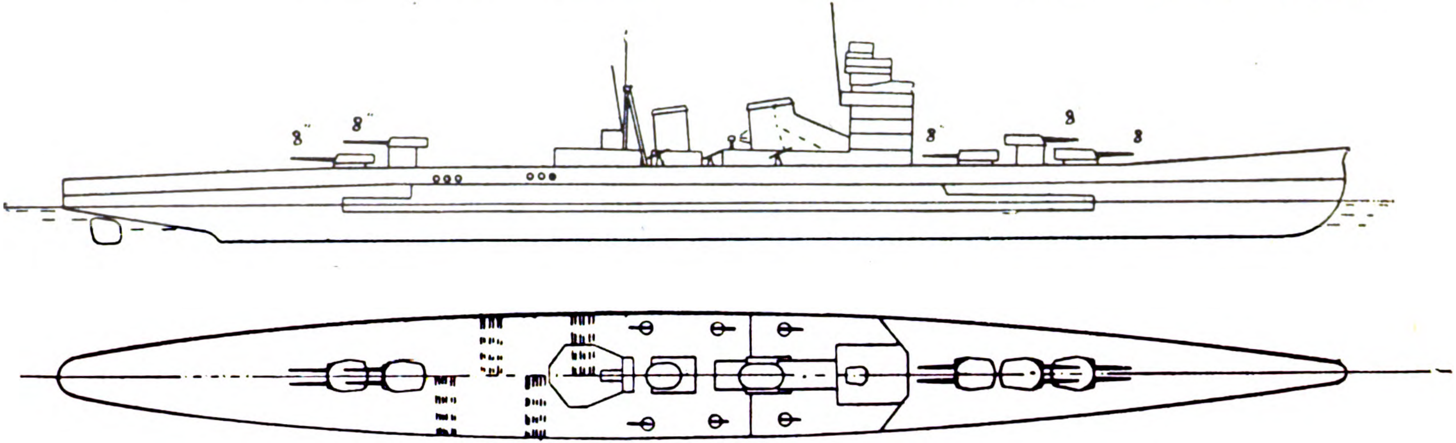


Length (extreme), 465 ft.; 2,890 tons; Speed, 33 knots. Completed, 1923.
Armament, 6—5·5-in.; 1—3 in. A.A.; 2 M.; 2 twin 21-in. torpedo tubes; 34 mines.
Correction to plan.—Masts and funnel raked aft.

JAPAN.

CRUISERS.

Nachi. Myoko. Ashigara. Haguro ("*Nachi*" *Class.*) Atago.* Takao.* Chokai.* Maya.* ("*Takao*" *Class.*)



Length (extreme), 650 ft. ("Takao" Class); 640 ft. ("Nachi" Class); "Nachi" Class, 10,000 tons; "Takao" Class, 9,850 tons; Speed, 33 knots. Armament, 10—8-in.; 8—4·7-in. A.A., 2 M.; 12—21-in. torpedo tubes; 2 catapults; 4 aircraft.

*** These have 4—4·7-in. A.A., and 8—21-in. torpedo tubes.**

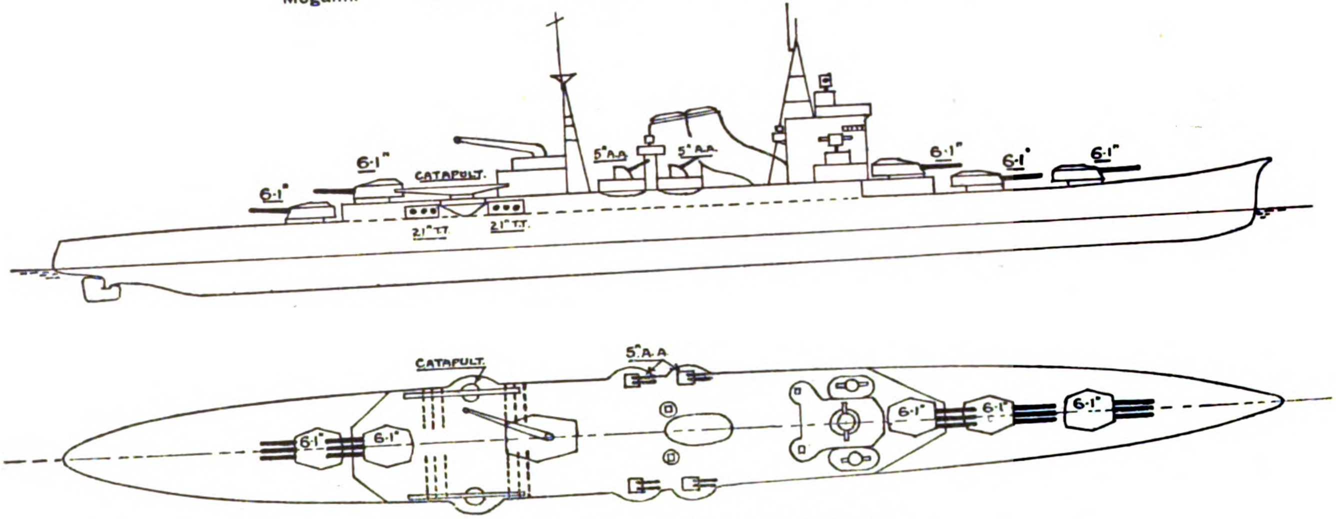
Corrections to plan.—**In the "Takao" Class the after funnel is vertical, and the torpedo tubes are beneath the funnels on a deck higher. The four 4·7-in. A.A. guns** are also a deck higher. **Foremast has four braced legs. In the "Nachi" Class the foremost pair of 4·7-in. A.A. guns are a deck higher. Catapults fitted abaft mainmast.**

JAPAN.

CRUISERS.

"*Mogami*" *Class.*

Mogami. Mikuma. Suzuya. Kumano. Tone. Tikuma.



Length (extreme), 640 ft. ; 8,500 tons ; Speed, 33 knots.

Armament, 15—6·1 in. ; 8—5-in. A.A. ; 12—21-in. torpedo tubes ; 2 catapults, 4 aircraft.

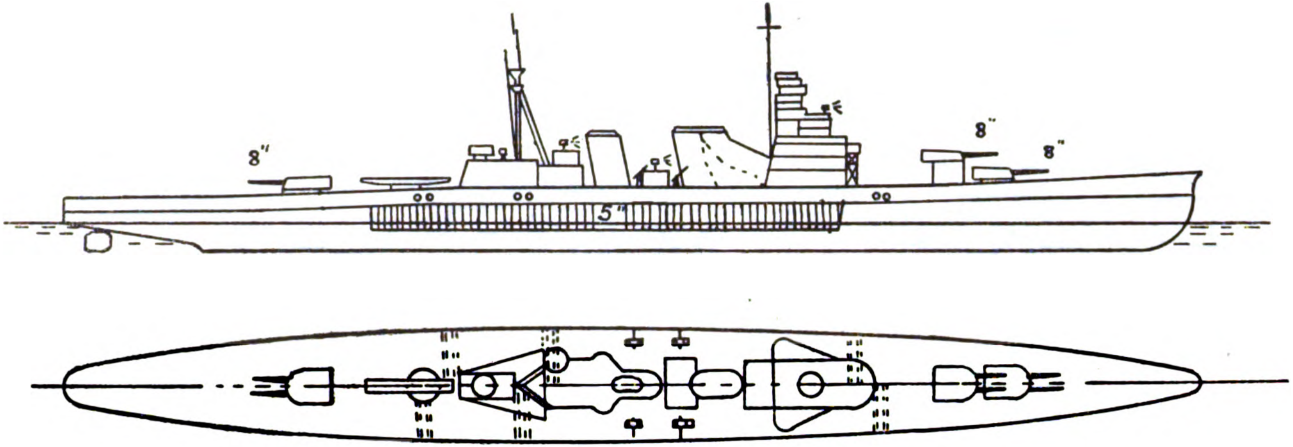
Mogami and Mikuma completed, 1935 ; Suzuya, 1936 ; Kumano, 1937 ; Tone, 1938 ; Tikuma, 1939.

JAPAN.

CRUISERS.

"*Furutaka*" *Class.*

Aoba. **Kinugasa.**



Length (extreme), 595 ft. ; 7,100 tons ; Speed, 33 knots ; Completed, 1927.
Armament, 6—8-in. ; 4—4·7-in. A.A. ; 10 M. ; 12—21-in. torpedo tubes ;
1 catapult ; 2 aircraft.

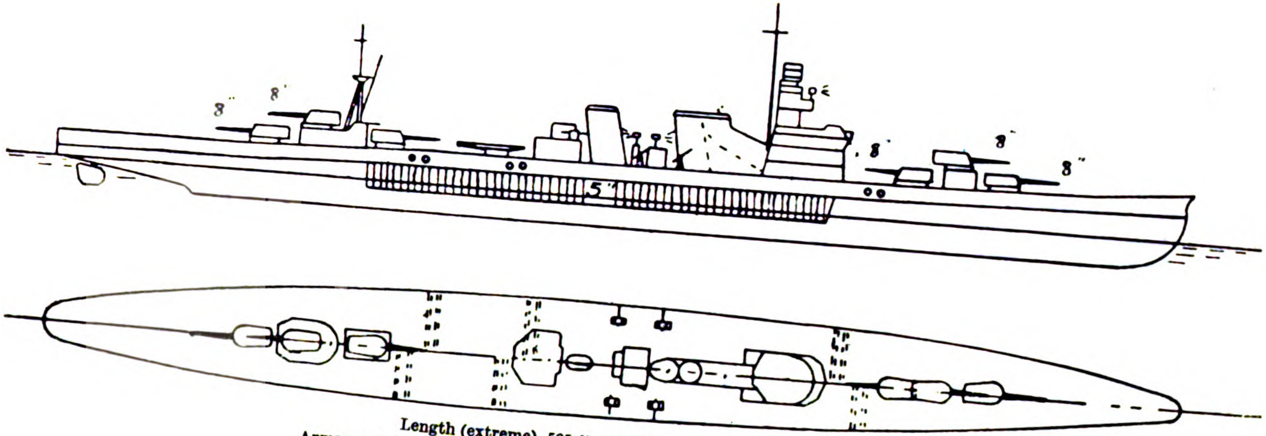
Correction to plan.—The tops of the funnels are square to the funnels.
The pole mast is raked.

JAPAN.

CRUISERS.

"*Furutaka*" Class.

Furutaka. **Kako.**



Length (extreme), 595 ft.; 7,100 tons; Speed, 33 knots.
Armament, 6—8-in.; 4—4·7-in. A.A.; 10 M.; 12 above-water 21-in. torpedo tubes;
1 catapult; 2 aircraft.

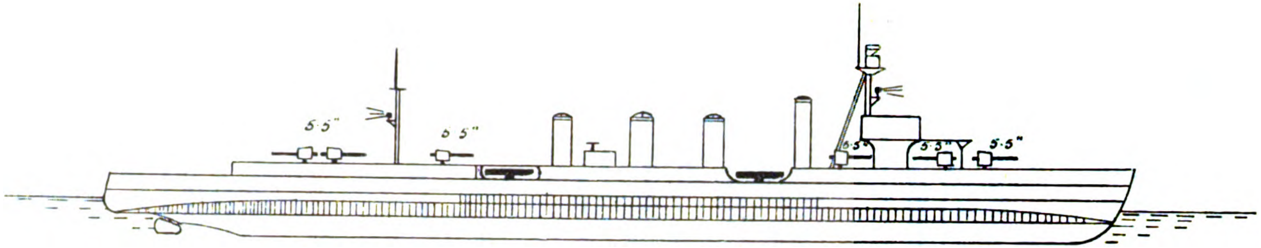
Correction to plan.—The tops of the funnels are square to the funnels.
The masts are raked.

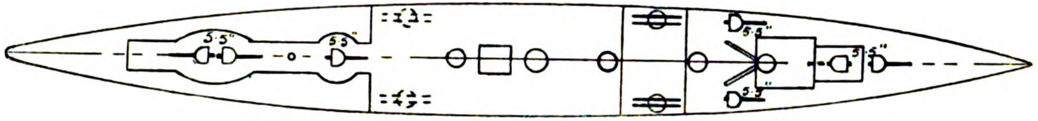
JAPAN.

LIGHT CRUISERS.

"*Sendai*" *Class.*

Naka. Sendai. Jintsu.





**Length (extreme), 535 ft.; Speed, 33 knots; 5,195 tons; Completed, 1924–25.
Armament, 7—5·5-in.; 2—3-in. A.A.; 5 M.; 4 twin 21-in. torpedo tubes; 80 mines; 1 seaplane; 1 catapult.**

Correction to plan.—Bows of Jintsu and Naka have been modified to give more flair. Catapult fitted abaft mainmast which is of tripod construction and is fitted with a derrick. Aircraft platform removed from forecastle.

JAPAN.

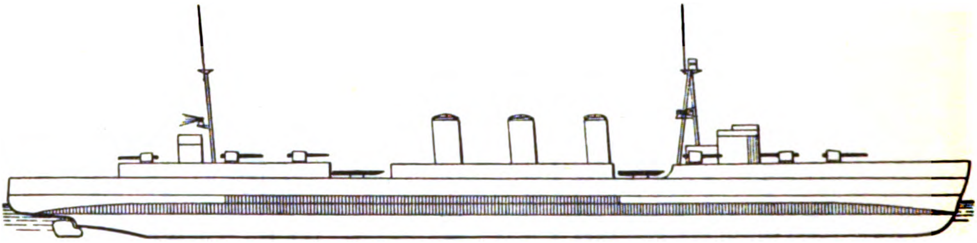
LIGHT CRUISERS.

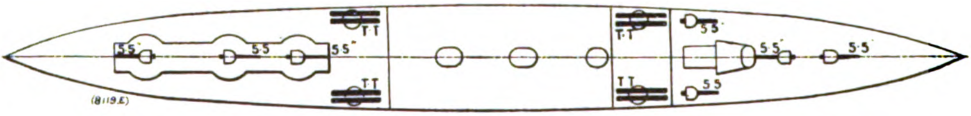
"Natori" Class

{ **Isudzu.** { **Natori.** { **Kinu.**
{ **Nagara.** { **Yura.** { **Abukuma.**

"Kuma" Class.

Oi. **Kiso.** **Kitakami.** **Tama.** **Kuma.**





Length (extreme), 535 ft.; Speed, 33 knots; "Kuma" Class, 5,100 tons; "Natori" Class, 5,170 tons; Completed, 1920–23.

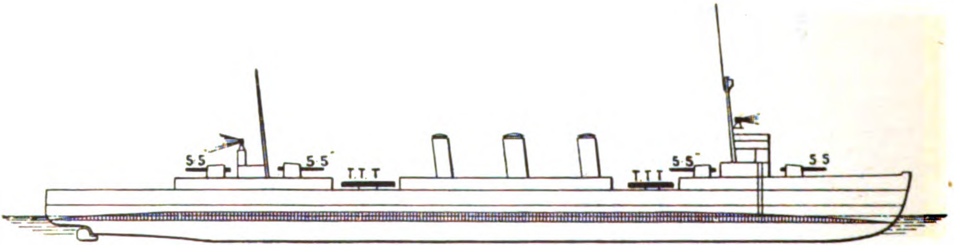
Armament, 7—5·5-in.; 2—3-in. A.A.; 2 M.; 4 twin above-water 21-in. torpedo tubes; 1 catapult; 1 aircraft. 80 mines.

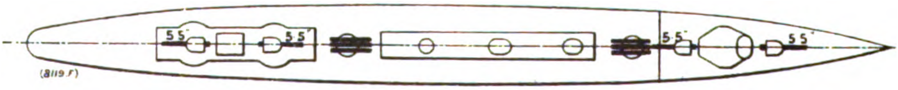
Corrections to plan.—Catapult fitted before mainmast, which is of tripod construction and is fitted with a derrick.

LIGHT CRUISERS.

"Tenryu" Class.

Tatsuta. **Tenryu.**



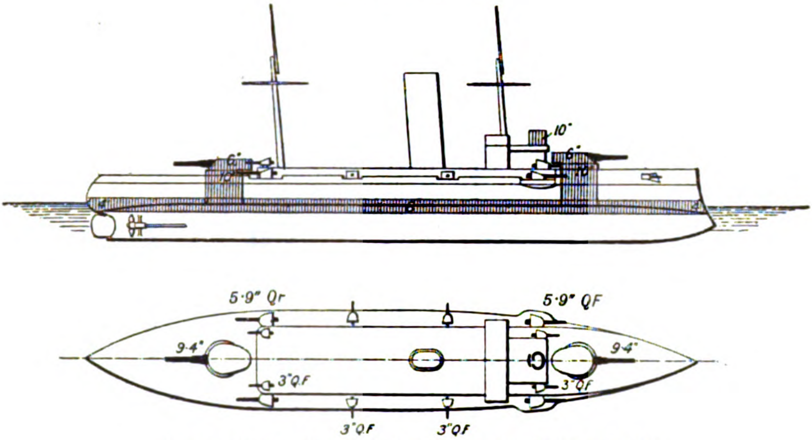


Length (extreme), 468 ft.; Speed, 31 knots; 3,230 tons; Completed, 1919.
Armament, 4—5·5-in.; 1—3-in. A.A.; 2 M.; 2 triple above-water torpedo tubes; 1 seaplane.
Fitted for Minelaying.

NETHERLANDS.

COAST DEFENCE SHIP.

Hertog Hendrik.

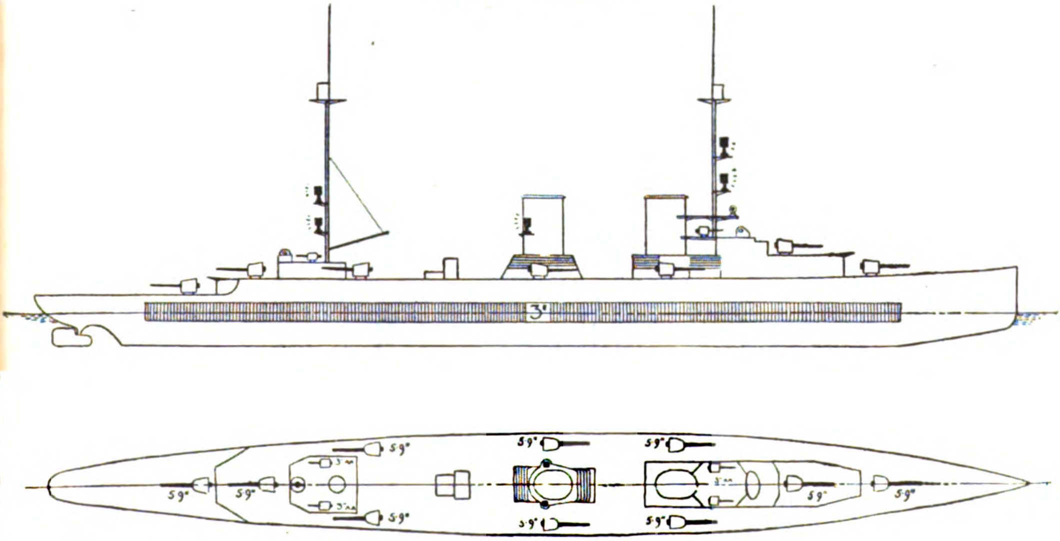


Length, 317 ft.; 4,371 tons; Speed, 16 knots; Completed, 1904.
Armament, 1—9·4-in.; 4—5·9-in.; 2—3-in.; 6—1 pr.; 2 M.
After gun removed.

NETHERLANDS.

CRUISERS.

Java. **Sumatra.**



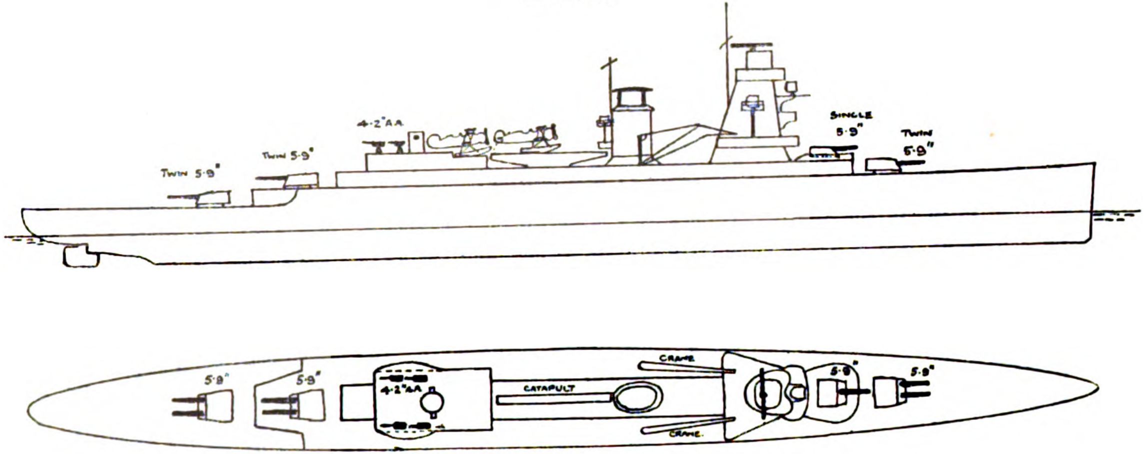
Length, 509¼ ft.; 6,670 tons; Speed, 31 knots; Completed, 1925–26.
Armament, 10—5·9 in.; 6—1·5 in.; 6—·5-in. A.A.; 8 M.;
40 mines; 2 seaplanes

Corrections to plan —These cruisers have been reconditioned. The 4—3-in. A.A. have been removed. The mainmast has been shortened, moved forward, and fitted with derrick and searchlights. Main topmast removed. 3—4-cm. machine guns have been fitted each side of the after deck house. The forward 4-sided 5·9-in. have been raised a deck to the signal deck, which has been extended aft for the purpose. Fore topmast shortened and foremast made larger. Cranes fitted abreast foremost funnel. Aircraft stowed between funnels.

NETHERLANDS.

CRUISER.

De Ruyter.



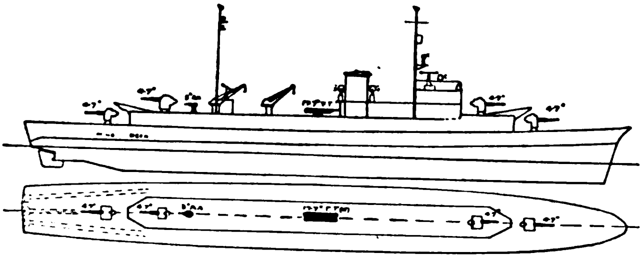
Length (extreme), 560 ft.; 6,450 tons; Speed, 32 knots.
Armament, 7—5·9-in.; 10—1·5-in. A.A.; 8—·5-in. A.A.; 8 M.G.; 1 catapult; 2 seaplanes.

Completed, 1936.
Correction to plan.—Funnel top modified.

NORWAY.

MINELAYER AND TRAINING SHIP.

Olav Trygvason.



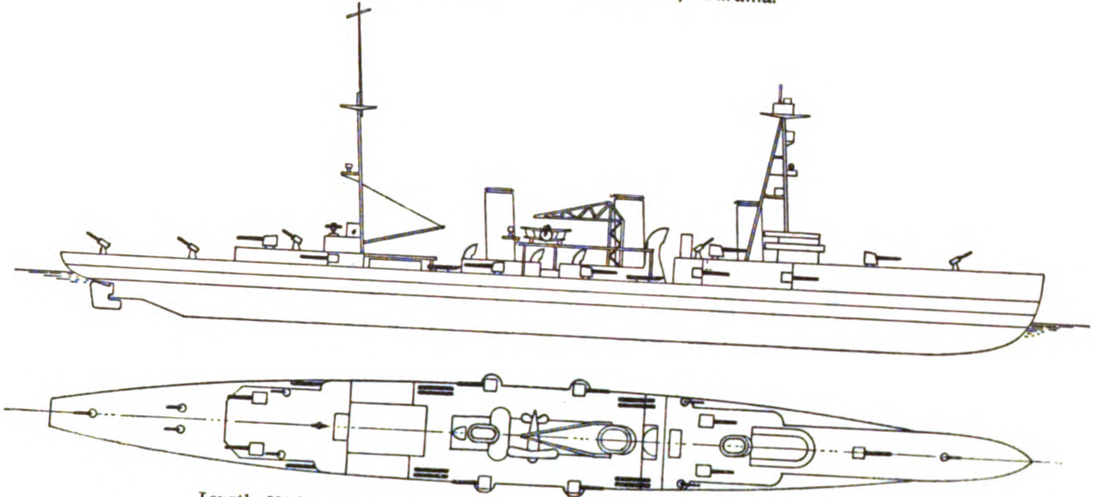
Length, 319½ ft.; 1,747 tons; speed, 21¾ knots; Completed, 1934.
Armament, 4—4·7-in.; 1—3-in. A.A.; 2—17·7-in. torpedo tubes.
280 mines.

Correction to plan.—Both cranes are fitted abreast the mainmast.

SOVIET UNION.

CRUISERS.

Profintern. **Chervonnaya Ukraina.**

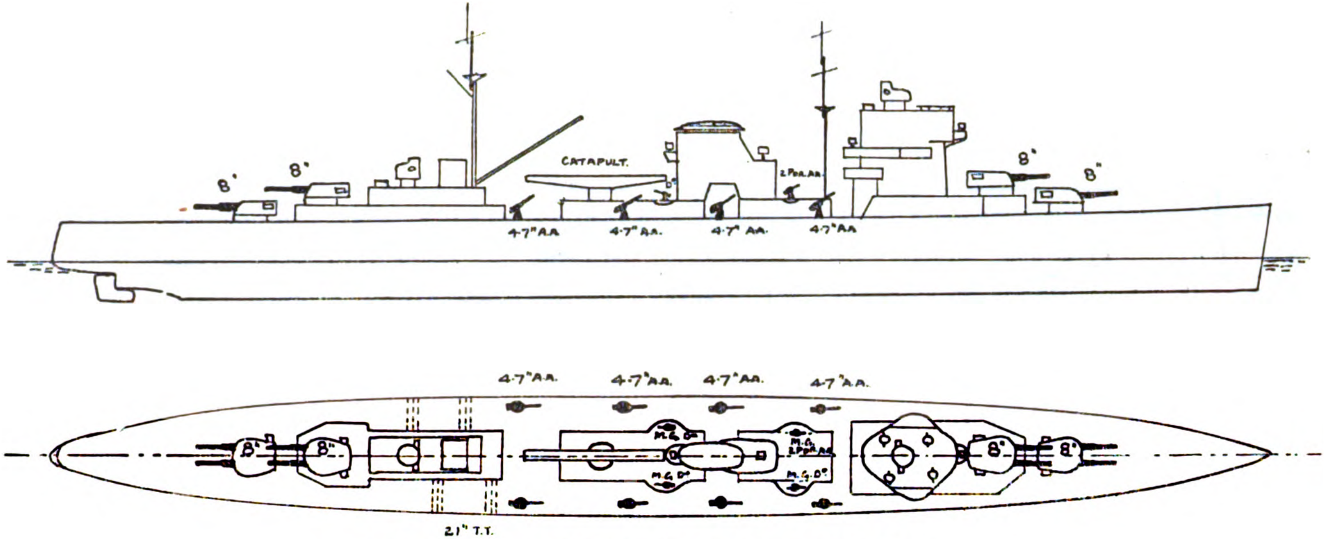


Length, 520 ft.; Displacement, 7,200 tons; Speed, 29½ knots; Completed, 1924–25.
Armament, 15—5·1-in.; 4—4-in.; 4—3-in. A.A.; 4 M.; 12—21-in. torpedo tubes; 100 mines; 2 seaplanes.

SPAIN.

CRUISER.

Canarias.



Length (extreme), 636 ft. ; 10,000 tons ; 33 knots ; Completed, 1935.

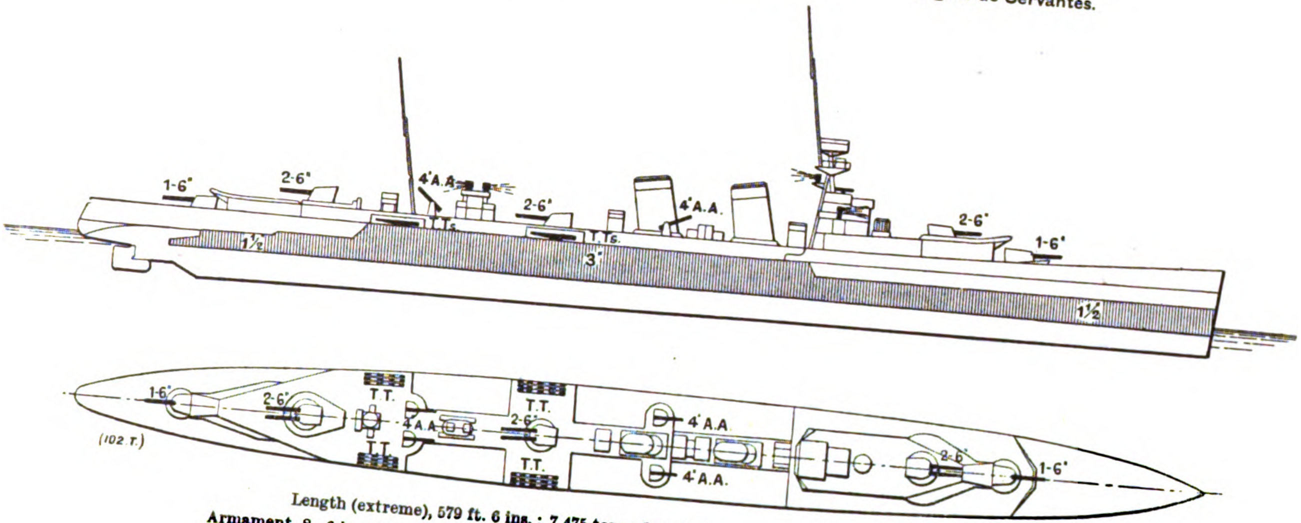
Armament, 8—8-in. ; 8—4·7-in. A.A. ; 8—2-pr. A.A. ; 12—21-in. torpedo tubes ; 1 catapult ; 2 aircraft.

Masts removed.

SPAIN.

CRUISERS.

Galicia (*ex*-Libertad (*ex*-Principe Alfonso).) **Almirante Cervera.** **Miguel de Cervantes.**

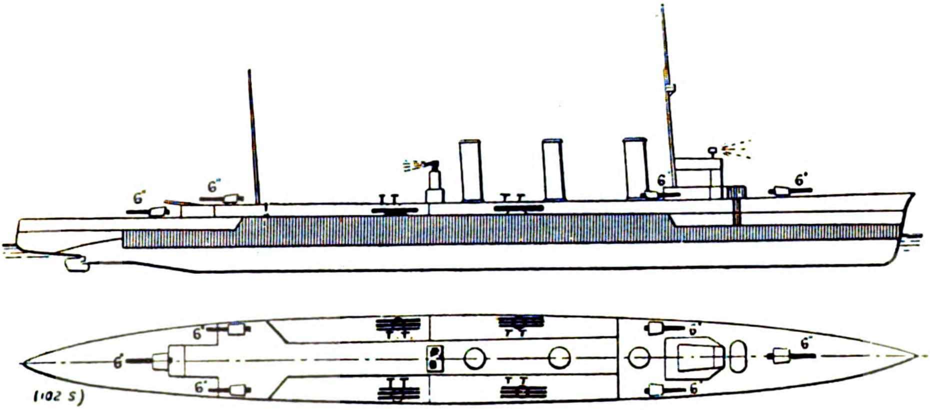


Length (extreme), 579 ft. 6 ins.; 7,475 tons; Speed, 33 knots. Completed 1927–1930.
Armament, 8—6-in.; 4—4-in. A.A.; 2—3 pr.; 1 M.; 4 triple above-water torpedo tubes (21-in. torpedoes).
Corrections to plan.—The mainmast is tripod. Fore topmast and topgallant mast removed.

SPAIN.

LIGHT CRUISER.

Mendez Nuñez.



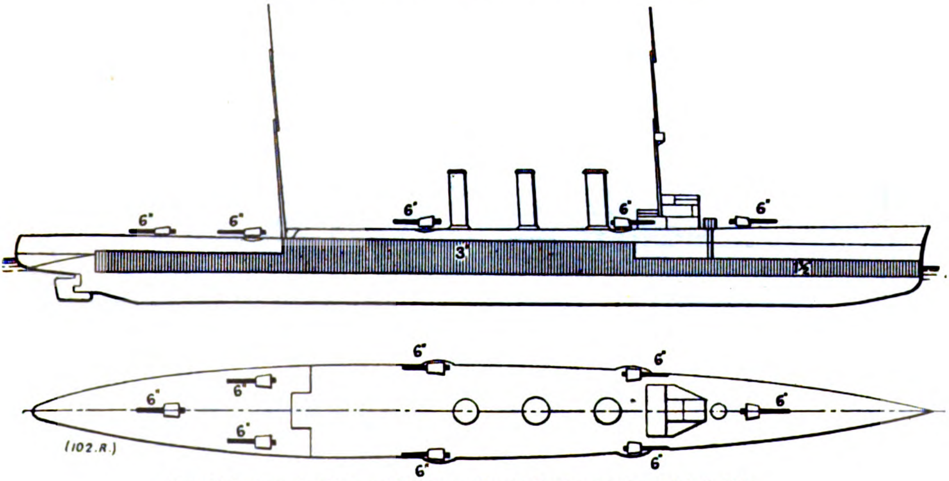
Length (extreme), 462 ft. ; 4,509 tons ; Speed, 29 knots. Completed, 1924.
Armament, 6—6-in. ; 4—1·9-in. A.A. ; 4 M. ; 4 above-water triple torpedo tubes (21-in. torpedoes).

NOTE.—The armour belt is 3 ins. thick, tapering to 1½ ins. at the ends.

Corrections to plan.—The foremost is tripod. Fore topgallant mast is fitted. A.A. Armament is fitted between second funnel and mainmast. Searchlight platform added round after funnel.

LIGHT CRUISER.

Navarra (*ex*-Republica, *ex*-Reina Victoria Eugenia).



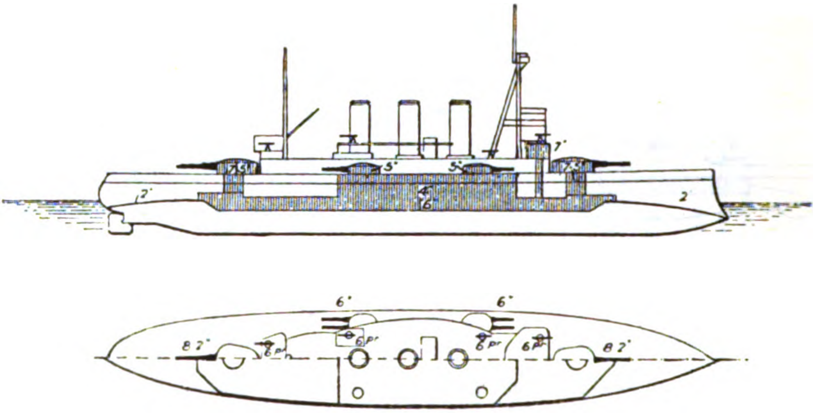
Length (extreme), 462 ft. ; 4,857 tons ; Speed, 25¼ knots ; Completed, 1923.
Armament, 6—6-in. ; 4—3·5-in. A.A. ; 4 M. ; 1 L. ; 4—21-in. torpedo tubes.

Correction to plan.—Foremost funnel and masts removed. Tower built in place of foremast and superstructure built in place of mainmast and fitted with pole masts. A.A. Armament fitted in way of funnels. Upper deck extends further aft.

SWEDEN.

BATTLESHIP.

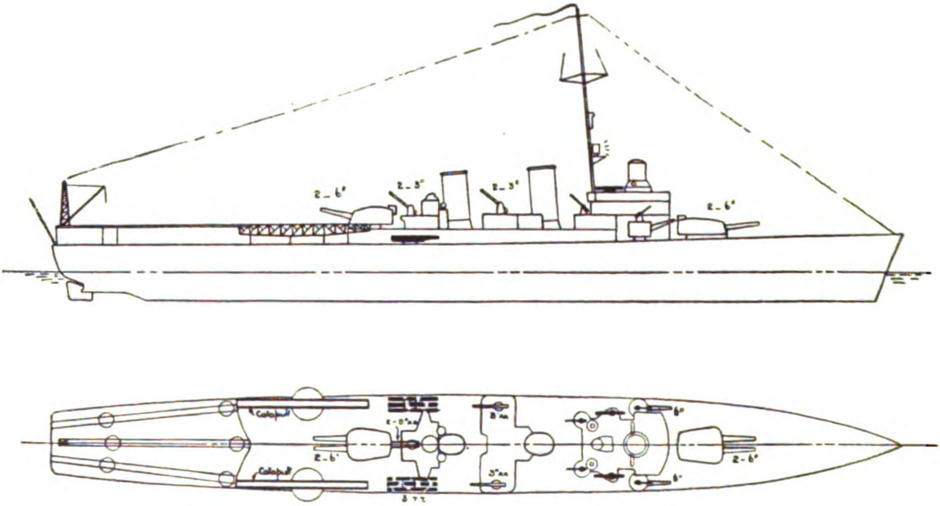
Oscar II.



Length, 313·6 ft. ; 4,250 tons ; Speed, 18 knots ; Completed, 1907.
Armament, 2—8·3-in. ; 8—5·9-in. ; 8—6-pr. ; 1—1-pr. ; 2 submerged 18-in. torpedo tubes.
Searchlights fitted on foremast and mainmast.

AIRCRAFT CRUISER.

Gotland.

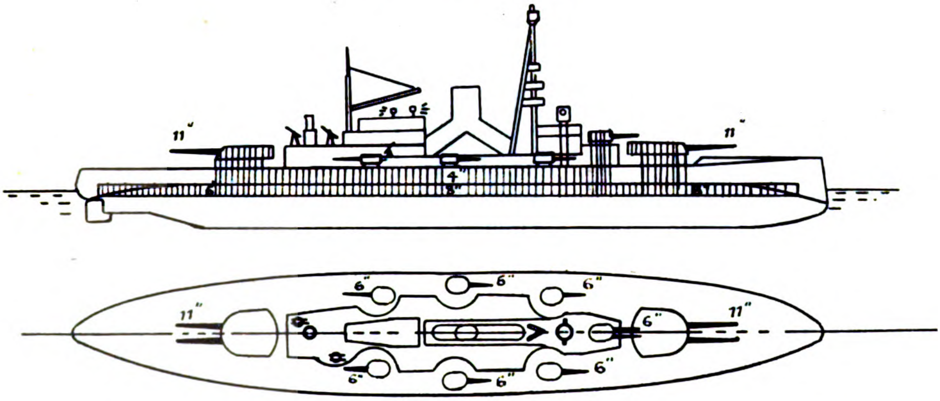


Length, 442 ft. ; 4,700 tons ; Speed, 27 knots ; Completed, 1934.
Armament, 6–6-in. ; 4—3-in. A.A. ; 4 M. ; 6—21-in. torpedo tubes ; 1 catapult ; 8 seaplanes ; 100 mines.
Correction to plan.—1 catapult is fitted on middle line.

SWEDEN.

COAST DEFENCE SHIPS.

Gustav V. **Sverige.**
(As reconstructed 1924–29.)



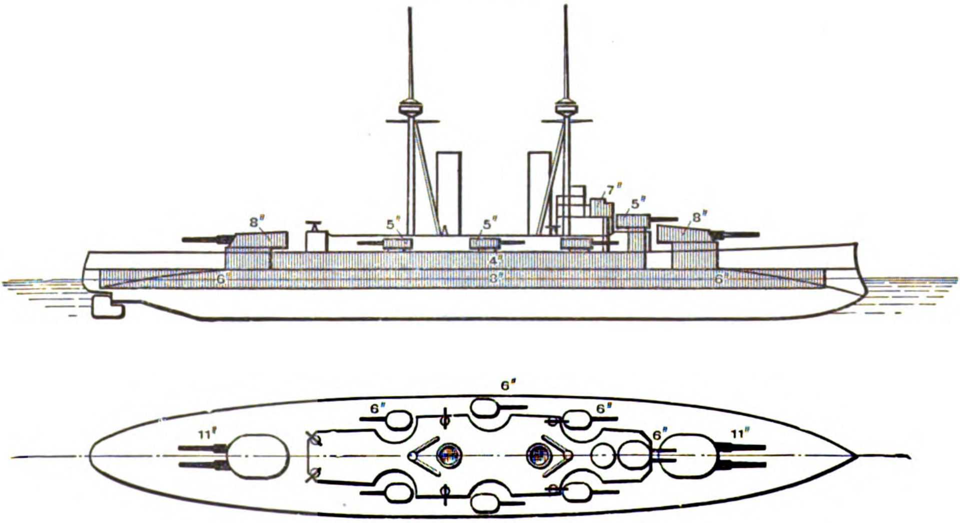
Length, 396·7 ft. ; Sverige, 6,899 tons ; Gustav V, 7,100 tons ; Speed, 23 knots ; Completed, 1917–21.
Armament, 4—11-in. ; 8—5·9-in. ; 4—3-in. ; 2—6-pr. ; 6 M.

Correction to plan.—Fore topmast added. Bridgework extended. Mainmast removed. In Sverige the mainmast is shortened ; two funnels are fitted, the after one being vertical and the forward one bent.

SWEDEN.

COAST DEFENCE SHIP.

Drottning Victoria.

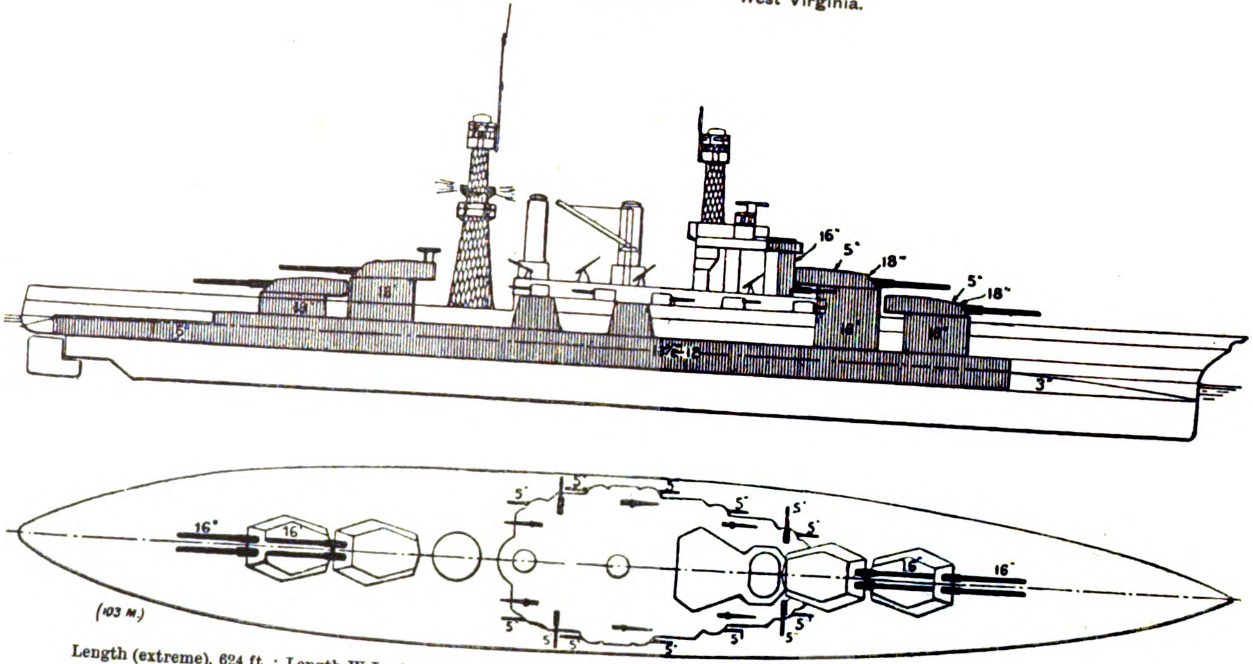


Length, 396·7 ft.; 7,160 tons ; Speed, 23 knots ; Completed, 1921.
Armament, 4—11-in. ; 8—5·9-in. ; 4—3-in. ; 2—6-pr. ; 9 M.
Mainmast removed and bridgework modified. Searchlight platform and A.A. guns fitted abaft after funnel.

UNITED STATES.

BATTLESHIPS.

Colorado. Maryland. West Virginia.



Length (extreme), 624 ft.; Length W.L., 600 ft.; Speed, 21 knots; 31,500–32,500 tons; **Maryland, completed,** 1921; Colorado and West Virginia, completed, 1923.

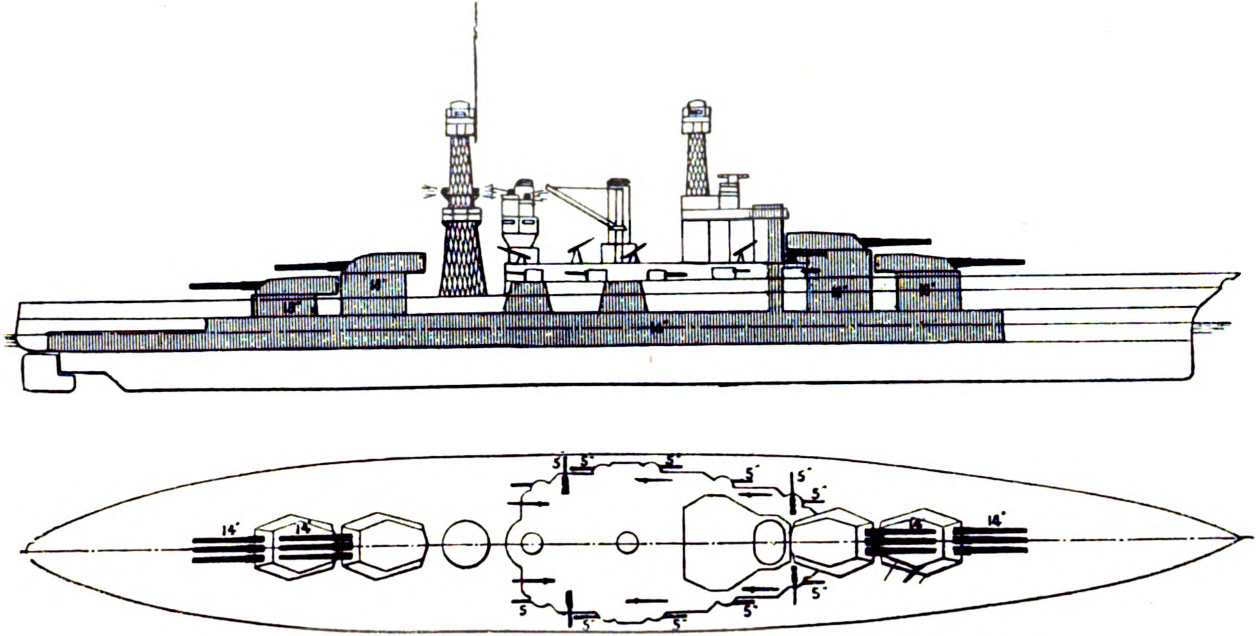
Armament, 8–16-in.; 12–5-in.; 8–5-in. A.A.; 2–6-pr.; 2–1-pr.; 8 M.; **2 submerged** 21-in. **torpedo tubes;** 2 catapults; 3 **aircraft.**

Corrections to plan.—Catapults fitted on "**X**" **turret and quarter deck. Crane fitted at stern. Main topgallant mast removed. Range finder fitted on B turret of Maryland.**

UNITED STATES.

BATTLESHIPS.

California. **Tennessee.**



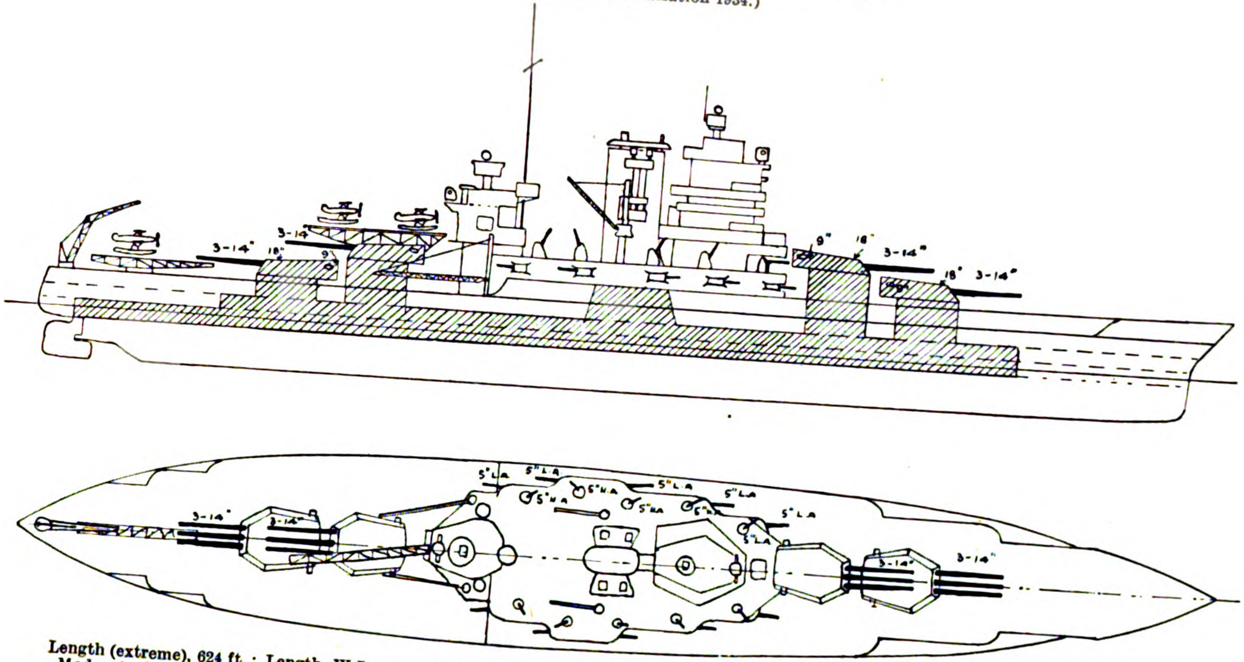
Length (extreme), 624 ft.; Length W.L., 600 ft.; Speed, 21 knots; 32,600–32,300 tons; Completed, 1920–21.
Armament, 12—14-in.; 12—5-in.; 8—5-in. A.A.; 2—6-pr.; 2—1-pr.; 8 M.; 2 submerged 21-in. torpedo tubes.
2 catapults (one right aft on quarter deck and one "X" turret); 3 seaplanes.
Main topmast shortened. Crane at stern.

UNITED STATES.

BATTLESHIPS.

Idaho. **New Mexico.** **Mississippi.**

(After modernisation 1934.)



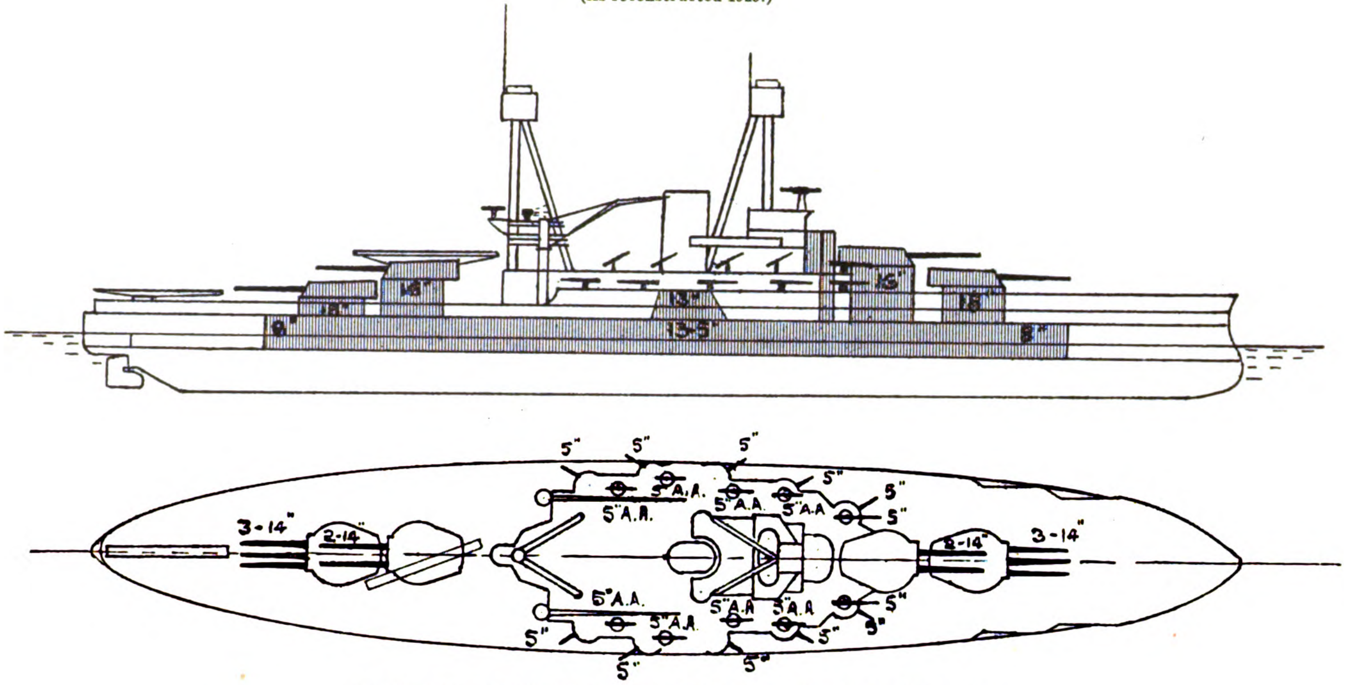
Length (extreme), 624 ft.; Length, W.L., 600 ft.; Speed, 22¼ knots; 33,000 tons: Idaho and New Mexico, 33,400 tons; Completed, 1917–19; Modernised, 1931–4. Armament, 12—14-in.; 12—5-in.; 8—5-in. A.A.; 2—6-pr. (Idaho, 2—3-pr.); 2—1-pr.; 8 M.; 2 catapults; 3 seaplanes.

UNITED STATES.

BATTLESHIPS.

Nevada. **Oklahoma.**

(As reconstructed 1929.)



Length (extreme), 583 ft.; Length W.L., 575 ft.; Speed, 20·5 knots; 29,000 tons.

Armament, 10—14-in.; 12—5-in.; 8—5-in. A.A.; 2—6-pr. (Oklahoma, 2—3-pr.); 2—1-pr.; 2 M.; 2 L.; 2 catapults; 3 aeroplanes.

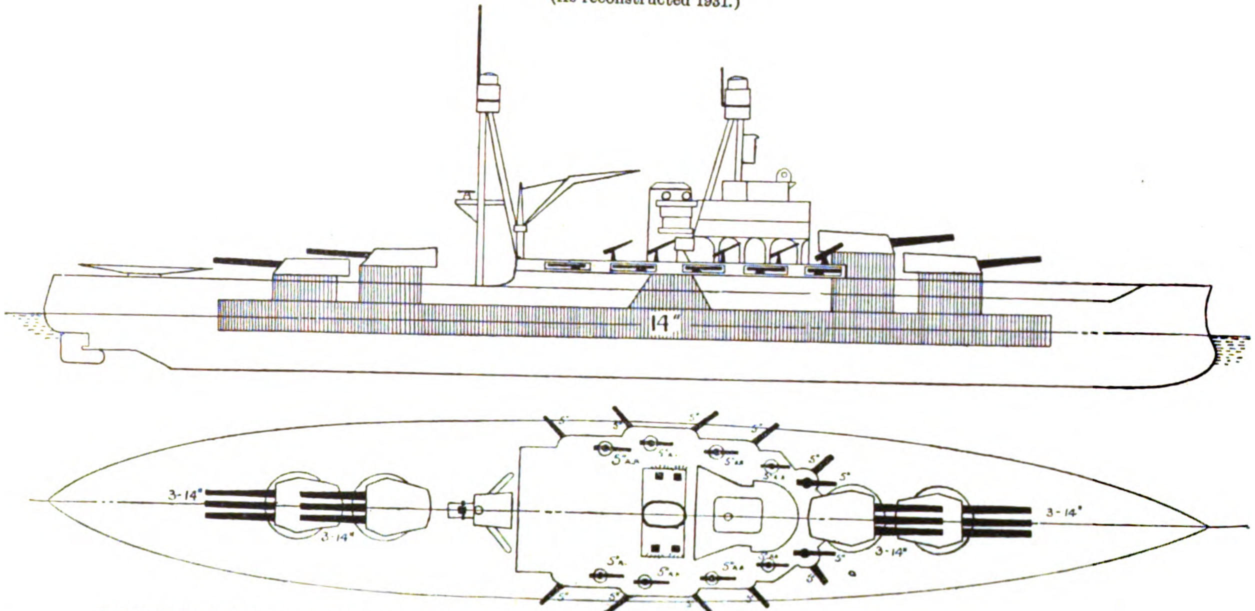
Correction to plan.—Bridgework extended and mastheads modified.

UNITED STATES.

BATTLESHIPS.

Arizona. **Pennsylvania.**

(As reconstructed 1931.)



Length (extreme), 608 ft.; Length B.P., 596 ft.; Speed, 21 knots; Pennsylvania, 33,100 tons; Arizona, 32,600 tons; Completed, **1916.**
Armament, 12—14-in.; 12—5-in.; 8—5-in. A.A.; 2—3-pr.; 8 M.; 2 L.; 2 catapults; 3 aircraft.

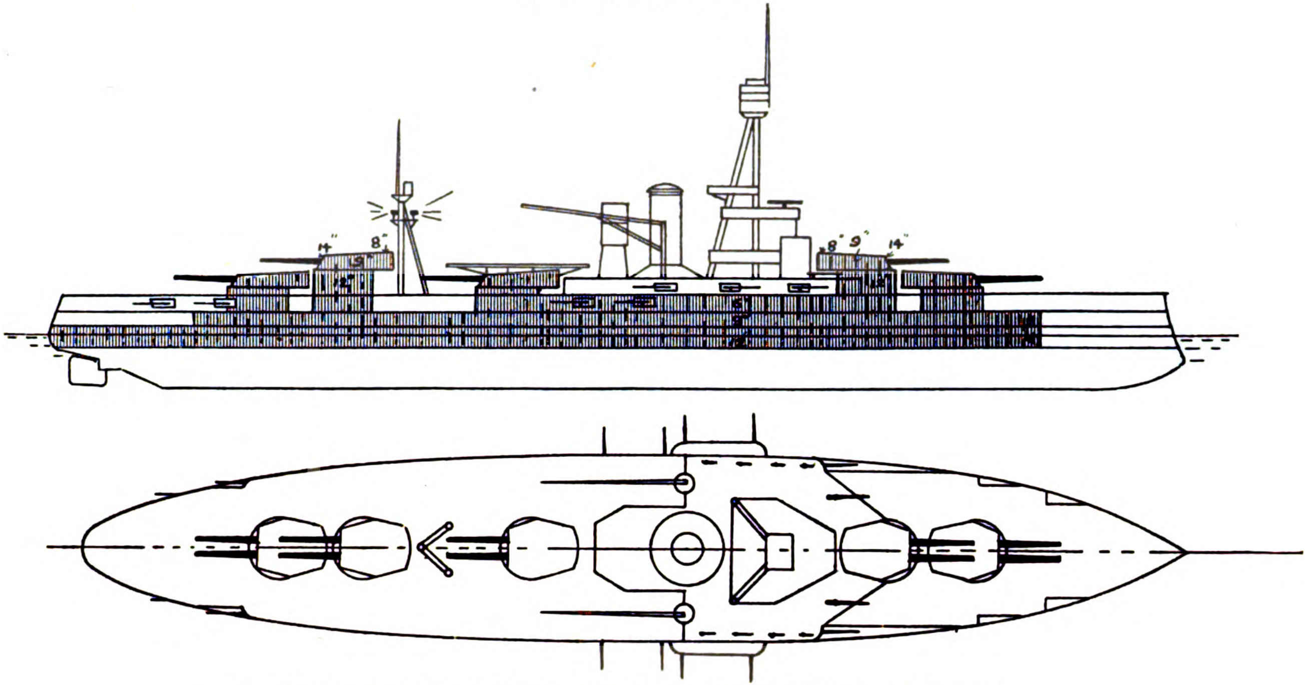
Corrections to plan.—Catapults fitted on "X" turret and quarter deck. Crane fitted at stern. Main topmast is on fore side of **mast structure.**

UNITED STATES.

BATTLESHIPS.

New York. **Texas.**

(As reconstructed 1927.)



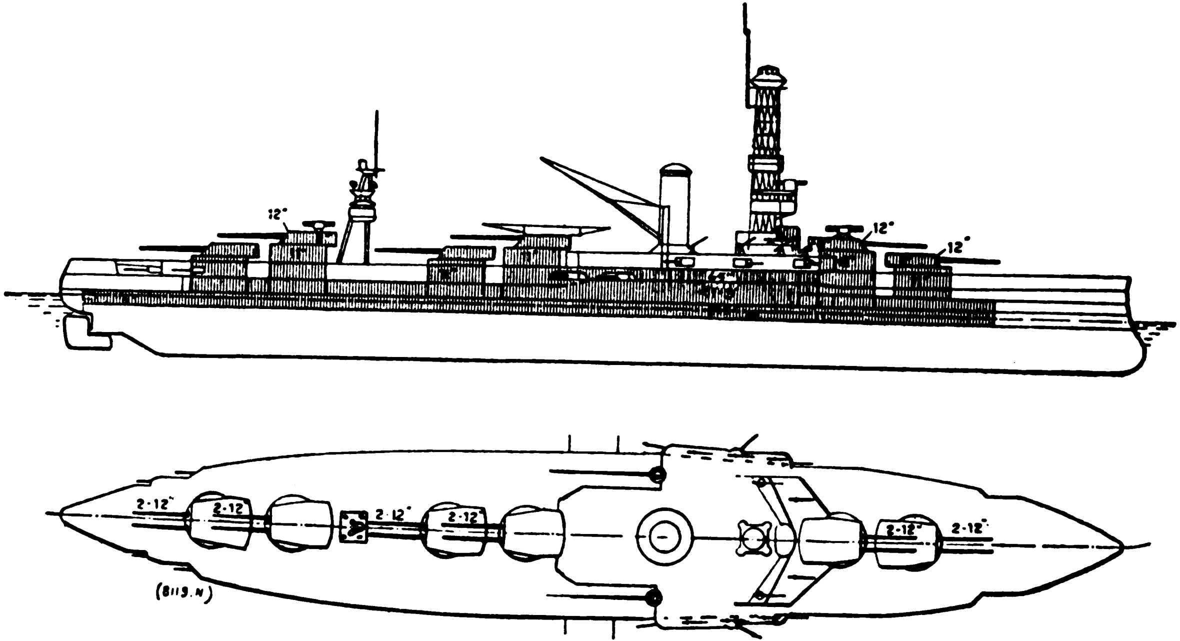
Length (extreme), 573 ft. ; Length W.L., 566 ft. ; Speed, 21 knots ; 27,000 tons ; Completed, 1914.
Armament, 10—14-in. ; 16—5-in. ; 8—3-in. A.A. : 2—3-pr. ; 8 M. ; 1 catapult ; 3 aircraft.
Corrections to plan.—Fore topmast removed, mast heads modified. Main mast head fitted with machine guns.
Range finders fitted on "B" and "X" turrets.

UNITED STATES.

BATTLESHIP.

Arkansas.

As reconstructed 1927.)



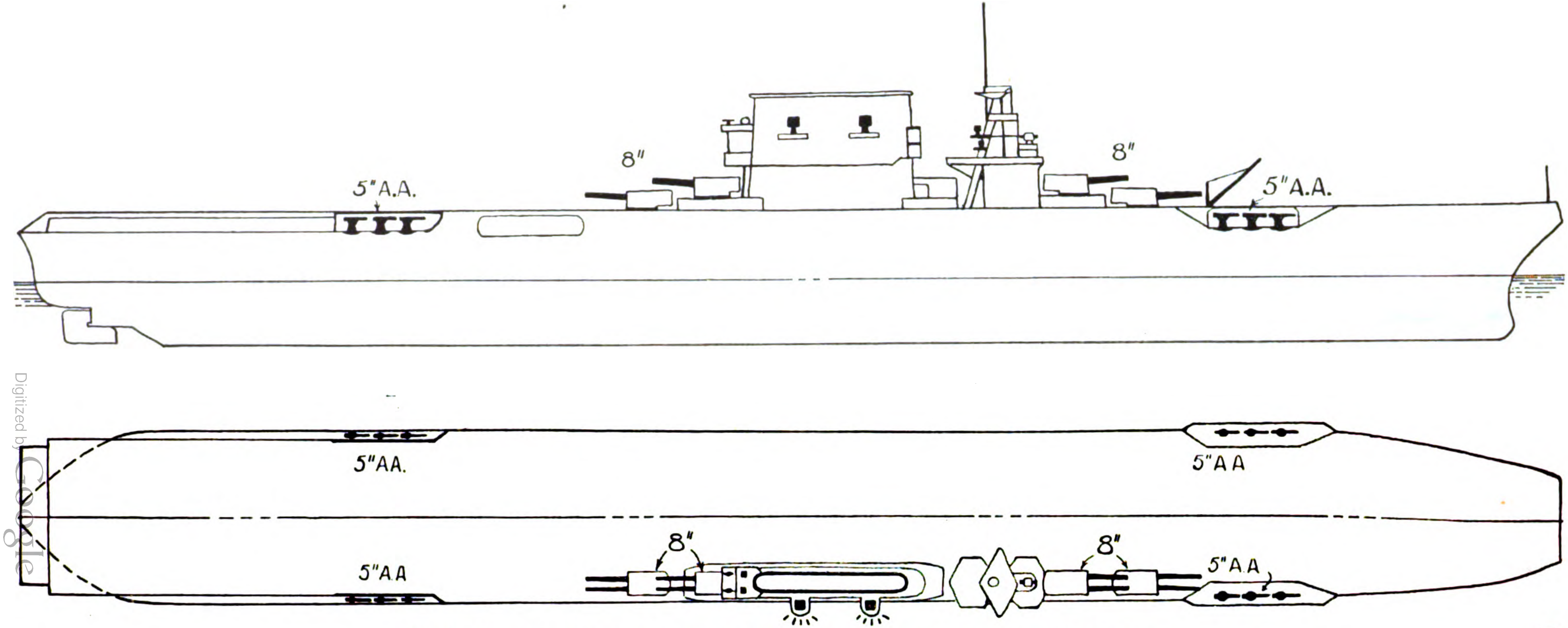
Length (extreme), 562 ft. ; Length, W.L., 555 ft. ; Speed, 20·5 knots ; 26,100 tons ; Completed, 1912.
Armament, 12—12-in. ; 16—5-in. ; 8—3-in. A.A. ; 2—3-pr. ; 8 M. ; 1 catapult ; 3 aircraft.

Wyoming, a sister ship, has been demilitarised and converted to a training ship.

UNITED STATES.

AIRCRAFT CARRIERS.

Lexington. **Saratoga.**

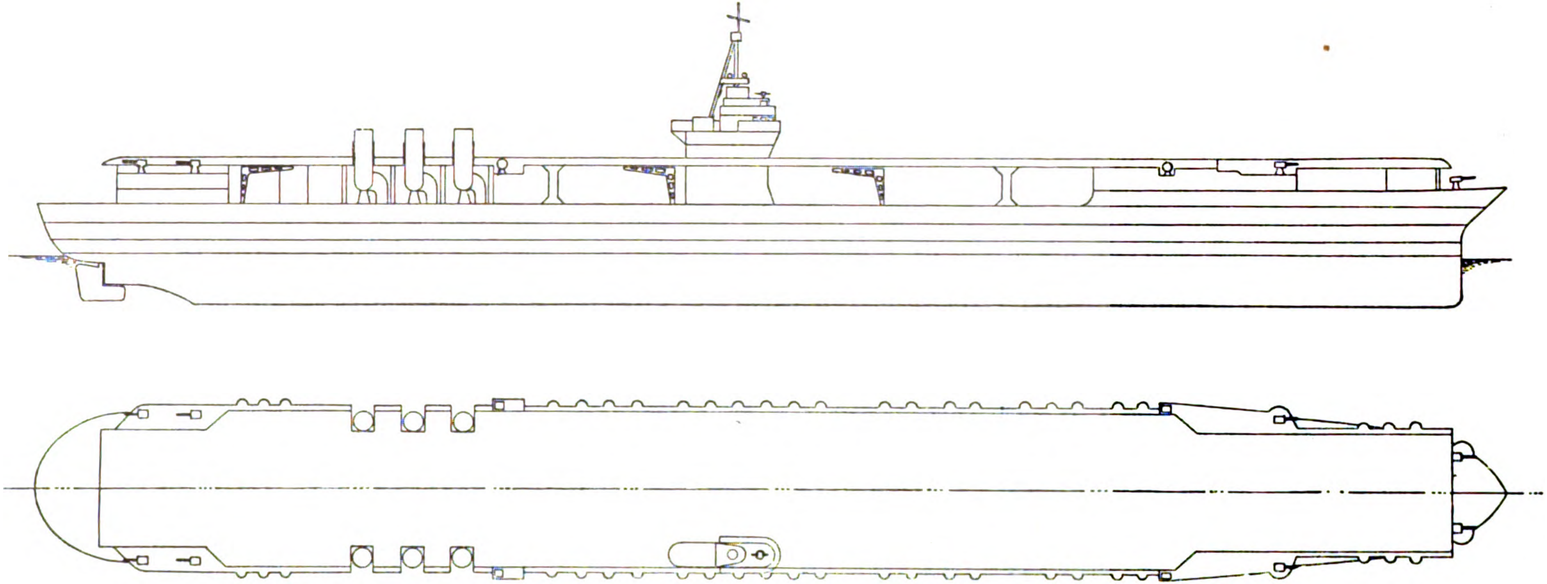


Length (extreme), Lexington, 880 ft. ; Saratoga, 888 ft. ; 33,000 tons ; Speed, 33·9 knots ; Completed, 1927.
Armament, 8—8-in. ; 12—5-in. A.A. ; 2—6-pr. ; Operate about 80 aircraft ; 1 catapult.
Correction to plan.—Lexington has platform round top of funnel.

UNITED STATES.

AIRCRAFT CARRIER.

Ranger.



Length (overall), 769 ft.; Length W.L., 728 ft.; Displacement, 14,500 tons; Speed, 29¼ knots. **Completed, 1934.**

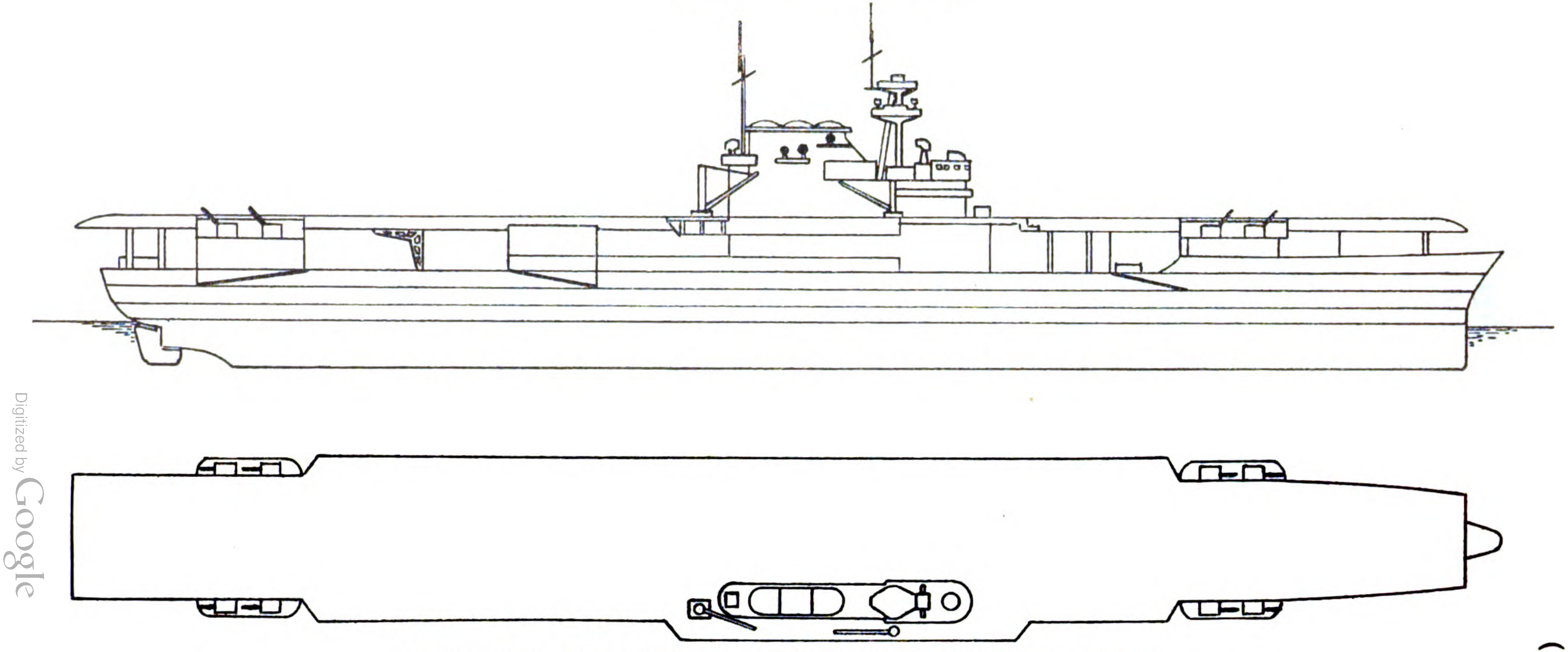
Armament, 8—5-in. A.A.; 50 M.G.; 76 aircraft.

NOTE.—The funnels can be swung outboard. Signal masts fitted at ends of flight deck.

UNITED STATES.

AIRCRAFT CARRIERS.

Enterprise. Yorktown. Hornet.

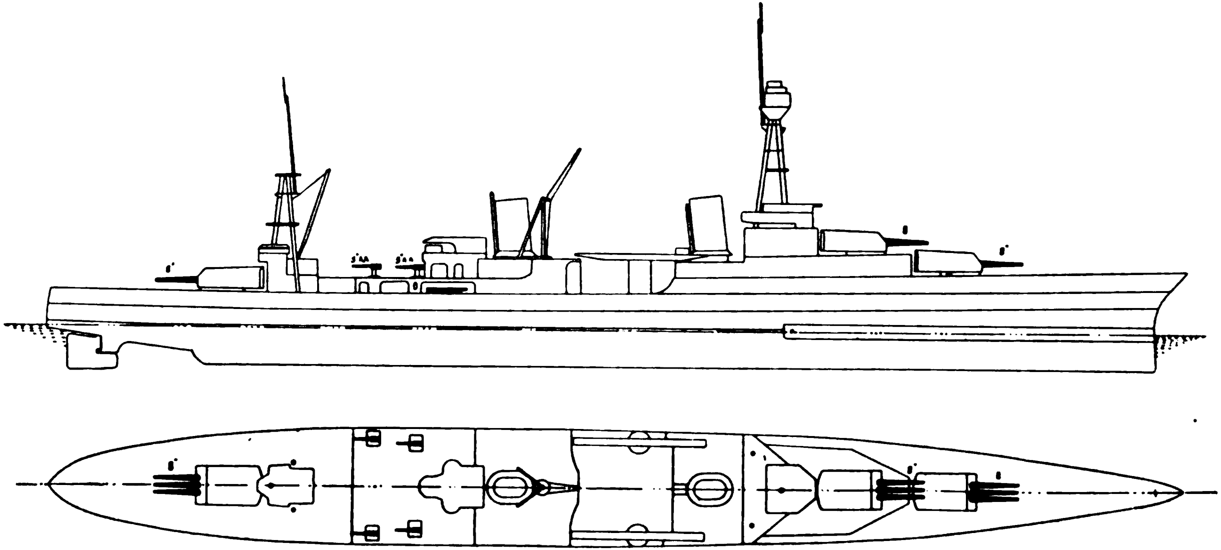


Length (on W.L.), 761 ft.; 19,900 tons; Speed, 24 knots; Enterprise and Yorktown completed 1938.
Armament, 8—5-in. A.A.; 16 1·1 in. M.A.A.; 76 aircraft; 1 catapult.

UNITED STATES.

CRUISERS.

Northampton. **Chester.** **Louisville.** ("*Chester*" *Class.*) **Chicago.** **Houston.** **Augusta.** ("*Augusta*" *Class.*)



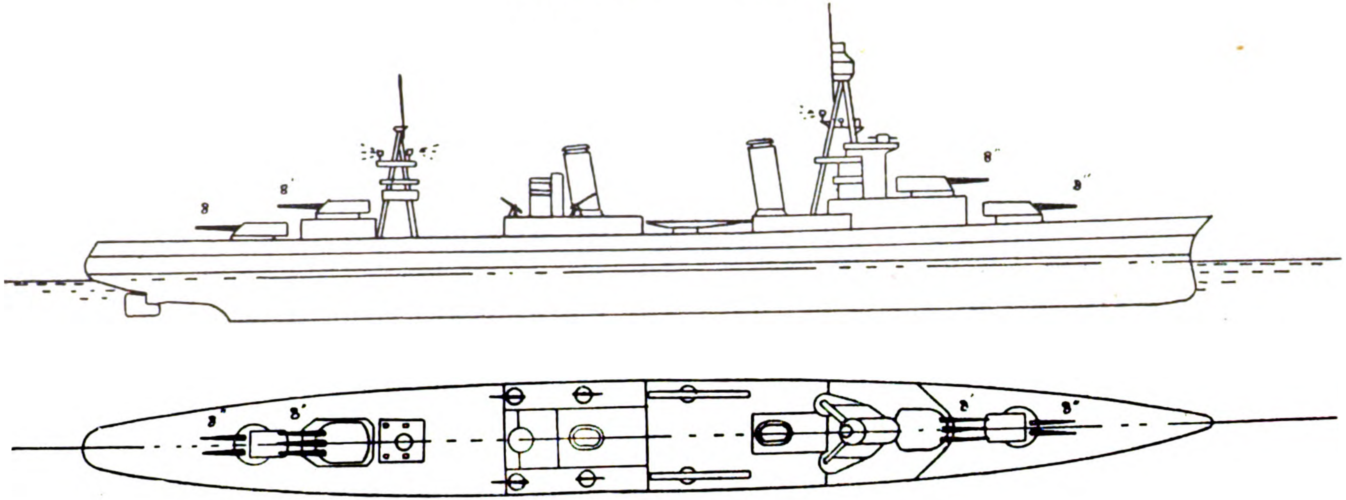
"Chester" and "Augusta" Classes: Length (extreme), 600¼ ft.; 9,050–9,300 tons; Speed, 32·5 knots; Completed, 1930–31. Armament, 9—8-in.; 4—5-in. A.A.; 2—3-pr.; 8 M.; 2 triple 21-in. torpedo tubes; 2 catapults; 4–6 seaplanes.
Corrections to plan.—Foremost funnel raised and fore topmast shortened.

UNITED STATES.

CRUISERS.

"Pensacola" Class.

Salt Lake City. **Pensacola.**



Length (extreme), 585½ ft. ; 9,100 tons ; Speed, 32·7 knots ; Completed, 1930.
Armament, 10—8-in. ; 4—5-in. A.A. ; 2—3-pr. ; 8 M. ; 2 triple 21-in. torpedo tubes ;
2 catapults ; 4 seaplanes.

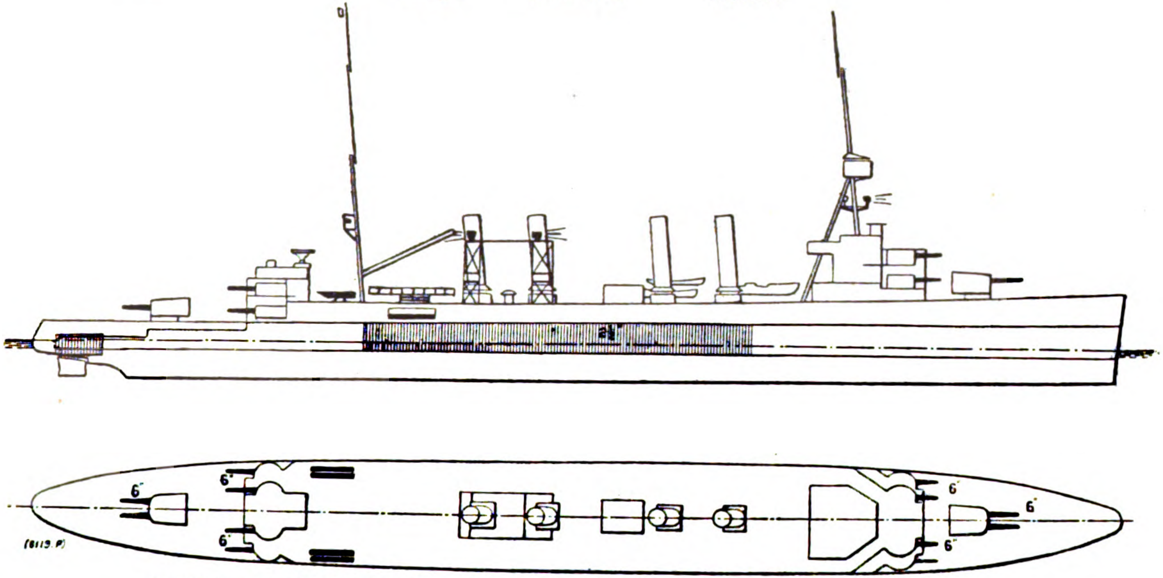
Corrections to plan.—Crane fitted on fore side of after funnel and derricks fitted on after side.

UNITED STATES.

SCOUT CRUISERS.

"Omaha" Class.

Cincinnati. **Concord.** **Detroit.** **Raleigh.** **Marblehead.** **Richmond.** **Memphis.** **Trenton.** **Milwaukee.** **Omaha.**



Length (extreme), 555 ft. 6 ins.; Length W.L., 550 ft.; Speed, 33·7 knots; 7,050 tons; Completed in 1923-25.

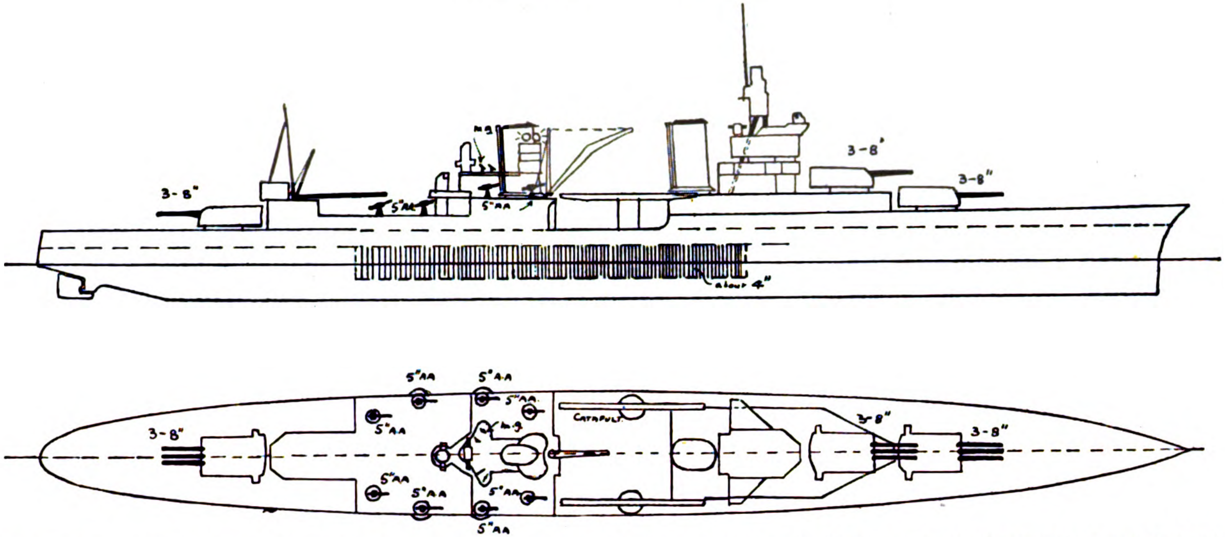
Armament, 12–6-in. (Marblehead, 11—6-in.; Cincinnati, Detroit, Raleigh and Richmond, 10—6-in.); 4—3-in. A.A.; 2—3-pr.; 2 triple above-water 21-in. torpedo tubes; 2 catapults; 2 aeroplanes; 30 mines.

Corrections to plan.—The pair of single 6-in. guns at upper deck level aft are removed in Marblehead, Cincinnati, Detroit, Raleigh and Richmond. In Marblehead there is a single gun on top of the after battery. Topgallant masts removed and topmasts shortened. Foremast head in Marblehead fitted with machine guns.

UNITED STATES

CRUISERS.

Indianapolis. **Portland.**



Length (extreme), 610 ft. 3 ins.; Indianapolis, 584 ft. on W.L.; Portland, 582 ft. on W.L.; Indianapolis, 9,950 tons; Portland, 9,800 tons; Speed, 32·7 knots. Completed, 1932–1933. Armament, 9—8-in., 8—5-in. A.A.; 10 machine guns; 2 catapults; 4–6 aircraft; 2—3-pdr.; 6—21 in. torpedo tubes.

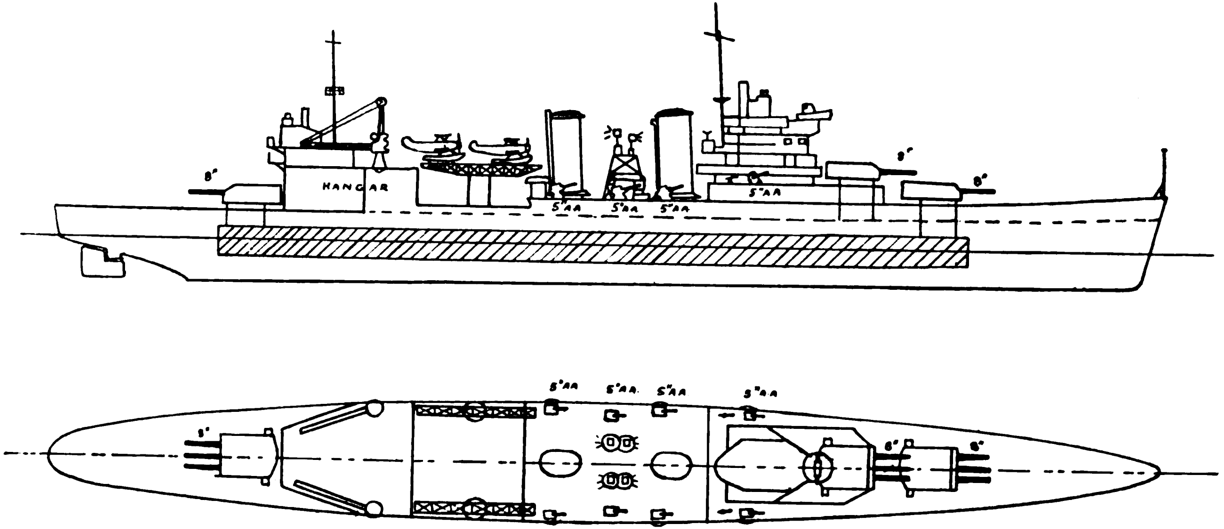
Corrections to plan.—Fore topmast is raked. Foremost funnel lengthened.

UNITED STATES.

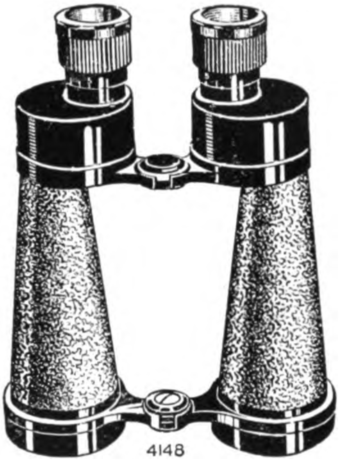
CRUISERS.

"*Astoria*" *Class.*

Astoria. **New Orleans.** **San Francisco.** **Minneapolis.** **Tuscaloosa.** **Quincy.** **Vincennes.** **Wichita.**



Length (extreme), 588 ft.; on W.L., 574 ft.; 9,950 tons; Speed, 32·7 knots; Completed, 1934–36.
Armament, 9—8-in., 8—5-in., 2—3-pr., 10 smaller; 2 catapults; 4 aircraft.



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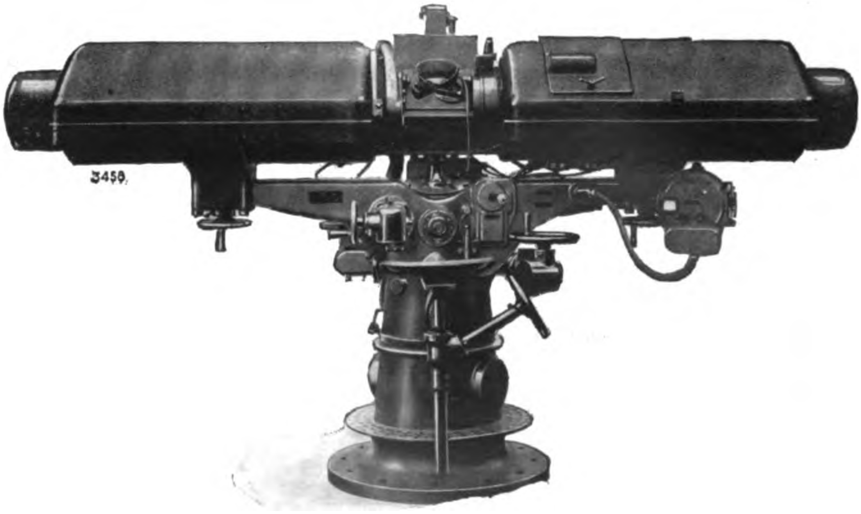

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a.a.cr. anti-aircraft cruiser; *a.cr.* armoured cruiser; *a.g.* armoured gunboat; *air.c.* aircraft carrier; *air.cr.* aircraft cruiser; *air.t.* aircraft tender; *a.s.* armoured ship; *a.t.* aviation transport; *b.* battleship; *b.cr.* battle cruiser; *c.d.* coast defence ship; *cr.* cruiser; *cr.m.l.* cruiser minelayer; *d.* destroyer; *f.cl.d.* first-class destroyer; *f.cl.t.b.* first-class torpedo-boat; *f.l.* flotilla leader; *g.t.s.* gunnery training ship; *l.cr.* light cruiser; *m.l. & t.s.* minelaying and training ship; *s.cl.d.* second-class destroyer; *s.cr.* scout cruiser; *sea-p.c.* seaplane carrier; *tr. cr.* training cruiser.

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a.cr. armoured cruiser; *a.g.* armed gunboat; *air.c.* aircraft carrier; *air.cr.* aircraft cruiser; *a.s.* armoured ship; *a.t.* aviation transport; *b.* battleship; *b.cr.* battle cruiser; *c.d.* coast defence ship; *cr.* cruiser; *cr.m.l.* cruiser mine layer; *g.t.s.* gunnery training ship; *l.cr.* light cruiser; *m.l. & t.s.* mine layer and training ship; *s.cr.* scout cruiser; *sea-p.c.* seaplane carrier; *tr.cr.* = training cruiser.

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